



Design and construction, completion of
Shell and Core Spaces
for
Khalifa University Medical College Health and
Sciences
(Civil and MEP)
Phase 2

SCOPE OF WORK

INTRODUCTION:

The purpose of this project is for the Design and construction, supply and installation - completion of Shell and Core Spaces for Khalifa University Medical College Health and Sciences (Civil and MEP), located in buildings A & B at the main campus. Entire project as per following scope and agreement shall be carried out with workmanship and finishes that will further enhance aesthetic of the building and that would leave positive impression of the existence of the Medical College upon those who sees it.

The entire scope covering in general spaces from ground to fourth floors being integral part of the project:

- 1) Birthing Suite –
- 2) Cave Automatic Virtual Environment – Immersive
- 3) Testing Center
- 4) Balsam
- 5) Animal House - Vivarium
- 6) Clinical Skills
- 7) Second Floor Offices – BMED
- 8) Third Floor Offices – Biology
- 9) Multi-Purpose Hall – Admission
- 10) Typical Future labs
 - a. First Floor
 - b. Second Floor
 - c. Third floor
 - d. Fourth floor

1.0 SCOPE OF WORK

1.1 GENERAL

1.1.1. CONTRACTOR shall be a professional, fully qualified and licensed entity that is authorized to act as Build CONTRACTOR. CONTRACTOR shall be responsible for the Detailed shop drawings, Construction, Procurement, Supply, Installation, Balancing, Testing, Commissioning and Handing Over with **One Year maintenance/Defect Liability Period**, of all parts and Components of the PROJECT in accordance with the SCOPE and AGREEMENT and to the satisfaction of CLIENT (Khalifa University – College of Medicine Health and Sciences). This includes liaising and obtaining all approvals from the Statutory Authorities having jurisdiction complete with all fees and charges, including the services of any mandated Third Parties.

1.1.2. CONTRACTOR shall perform all the necessary adjustment to the already provided design and existing building MEP services as may deem required following local and international standard, Construction and Coordination WORKS and deliver the PROJECT and all its components as fit for purpose, fully operational, functional, efficient (in supply, constructability, energy and cost), safe and usable for their intended purpose.

1.1.3. CONTRACTOR shall include in their Construction WORKS all the PROJECT components, building systems, building services, plant, equipment and any other features necessary to achieve fit for purpose and/or for the proper and full functions and operation of the New Building Facilities whether explicitly stated or not in this SCOPE of WORK. Furthermore, CONTRACTOR shall take full liability of

the supply and Construction of the PROJECT's WORKS and Components, and this for the entire New Building Spaces and its associated facilities and services.

1.1.4. Based on CLIENT's provided documents and CLIENT's requirements, CONTRACTOR's WORKS shall be performed and delivered as per the following sequence and stages which will require to be overlapped to ensure PROJECT's delivery as per Schedule and as per the required deliverables in each stage of the PROJECT:

PROJECT STAGE	STAGE DESCRIPTION
MOBILIZATION AND PREPARATION	Inspecting the Site , Setting up the Temporary Site Office and Installation of Protection
PROCUREMENT & CONSTRUCTION	Procurement and Construction
	Testing and Commissioning
	PROJECT Close-Out and Defect Liability Period, in addition to Warranty

During the course of the PROJECT and prior to commencement of every stage or where deemed required by CLIENT, CONTRACTOR shall prepare detailed presentations on monthly basis for CLIENT describing the extent of the WORKS completed, CONTRACTOR's deliverables, timeframes, key risks identification and mitigation plans (documented in formal Risk Register), Statutory Authorities' approvals status, list of pending issues, areas of concern (if any) and other important notifications to CLIENT, etc...

1.1.5. CONTRACTOR shall propose or provided in-house, engineering team having proven experience in similar works, and capabilities; submit CVs of the qualified staff to CLIENT for approval.

1.1.6. CONTRACTOR shall be responsible for the preparation and submission of detailed construction documents (i.e. reports, drawings, material submittals, calculation sheets, method statements, etc) as per CLIENT's requirements and for CLIENT's review and approvals. All construction and installation WORKS undertaken by the CONTRACTOR shall be as per submissions and documents approved by CLIENT.

1.1.7. CONTRACTOR shall visit and make themselves familiar with the existing SITE conditions of the PROJECT and shall be deemed to have studied all CLIENT provided documents, all its Components/ existing conditions / constraints / tie-ins and acquainted itself with local and international standards with all relevant details of the WORKS.

1.2 STATUTORY AUTHORITIES

1.2.1. CONTRACTOR shall be responsible for liaising and obtaining all the necessary construction Statutory permits / approvals / NOCs from all the relevant Statutory Authorities having jurisdiction (including Estidama) for the PROJECT's Construction WORKS. CONTRACTOR shall also produce, prepare and submit all necessary documents to these Statutory Authorities and shall be responsible to pay all fees and charges levied by these Statutory Authorities (including temporary utility connection fees).

1.2.2. CONTRACTOR remain responsible for the compliance with all applicable and latest laws, regulations, international and UAE building codes, best practices, standards and guidelines, including latest health, safety and environmental requirements. This compliance with official regulations shall be mandatory at such time as they are formally adopted.

1.2.3. CONTRACTOR shall provide a detailed plan and strategy including all the relevant Statutory Authorities. The plan shall include planned dates with time for approvals.

1.3 CLIENT'S REQUIREMENTS

1.3.1. CONTRACTOR shall conduct workshops, surveys including preparing necessary steps and other relevant tools required for effective information gathering.

1.3.2. The Specifications provided by CLIENT, as of this document, are being given as man source of information to assist CONTRACTOR, and the same will not absolve CONTRACTOR from its obligation stated in the AGREEMENT. Furthermore, CONTRACTOR shall be responsible for considering and complying with in their Construction WORKS under this SCOPE of WORK, BOQ, drawings and other related details

1.4 SUB-CONTRACTORS

1.4.1. Contractor in his comment of work and to comply with all required activities shall appointed specialized sub-contractors with preference to those that already exists, manning existing system running in the building and suppliers to carry on the work properly, the involvement of these specialized sub-contractors shall be in very early stage of the contract to provide required coordination and to control time of execution to meeting the project schedule at the time that highest quality to be provided.

1.4.2. The following are the key sub-contractors which Main contractor shall indicate and will have major impact on the technical evaluation of the Company.

1.4.3. The key sub-contractor:

- a. Third Party for testing and dismantling the existing services if any
- b. MEP sub-contractor
 - UPS: ABB/SIEL
 - Master Clock: Bodet
 - BMS: AZBIL
 - Access Control: SALTO
 - Fire Figthing: NAFFCO
 - Fire Alarm: SIMPLEX
 - Lighting Control: Clipsal
 - CCTV: Golden Shield
- c. HVAC and ventilation specialized company
- d. Third Party testing and commissioning specialized company
- e Acoustic studies specialized company.

1.5 PROJECT STAGES

1.5.1 Asset Protection and Handing Over:

Upon CONTRACTOR's appointment by CLIENT, survey / shall be carried out by CONTRACTOR during which all findings will be recorded in a specific Dilapidation Report which will be then submitted by CONTRACTOR to CLIENT's review and approval.

1.5.2 Construction, Procurement and Testing and Commissioning:

CONTRACTOR shall execution, coordinate testing and commissioning, hold weekly meeting and provide weekly progress reports.

CONTRACTOR shall be responsible for the Testing and Commissioning WORKS of all systems of the PROJECT. The Testing and Commissioning of all systems shall be conducted by qualified personnel and Third-Parties in coordination with CLIENT and to the satisfaction / approval of CLIENT.

CONTRACTOR shall be responsible for hiring the services of an independent testing, commissioning, adjusting and balancing Agency to test, adjust, and balance the building MEP systems as described within this document, to produce the PROJECT's objectives. Their provided services shall include checking of installations and performance of the equipment, systems for conformity to design measurement to the satisfaction and approval of CLIENT.

CONTRACTOR's Third-Party Agency shall also provide to CLIENT an "Indemnity Certificate", stating that "all the systems and equipment as per Built documents are tested, commissioned and balanced in accordance with relevant applicable standards, regulations and guidelines, meeting Design Intent of the PROJECT and CLIENT requirements".

1.5.3 PROJECT Close-Out:

CONTRACTOR shall carry final inspection and provide handing over reports to CLIENT for review and approval such as Document Submission Reports, Materials Approvals, Operations & Maintenance Manuals, Testing and Commissioning Reports and PROJECT Close-Out Report.

CONTRACTOR's PROJECT Close-Out Report shall include the following as a minimum:

- ☑ Final Basis of Construction Report
- ☑ Final set of drawings, specifications and reports (Testing, Commissioning etc)
- ☑ As-Built Drawings
- ☑ Risk Register
- ☑ Lessons Learned
- ☑ All approvals from relevant Authorities and NOCs
- ☑ All documents including O & M manuals, Warranty and DLP

Handover of all project documentation upon PROJECT Close-Out shall be in a format proposed, reviewed and approved by CLIENT

2.0 CONSTRUCTION SCOPE OF WORK

CONTRACTOR shall be responsible for considering and complying with in their Construction WORKS all the condition as stated and other related details in this agreement. Following Construction Scope is to be read and analyzed in conjunction with BOQ, drawings and other details set not limited to;

2..0.1 BRITHING SUITE

A. DEMOLITION WORKS

1. Removal of unwanted solid block walls etc. Wrap material in good condition, cart away to specified store.
2. Removal of unwanted floor finish prepare surface to accommodate new floor.
3. Removal of other unwanted material/debris within the space required, cart away to specified municipality dump site.

B. CIVIL WORKS(PARTION)

1. Supply and installation of blockwork including plastering, prepare surface to accommodate paint finish.
2. Supply and installation of gypsum wall partition made by using 12.5mm thick fire rated gypsum board (Knauf), double sheet on both side including metal frame work and joint tapping, prepare surface to accommodate paint finish.

C. JOINERY WORKS

1. Design, construction, supply and instllation of Control room, footprints as indicated in the layout. Partition to be of standard gypsum, complete with 35kg/m3 rockwool insulation. Control room window to be of one-way mirror to match those of the Simulation control and or OSCE observation cove.

D. THERMAL AND MOISTURE PROTECTION WORKS

1. Works as may require to be carried out ensuring that entire space is free from warm air and moistures.

E. WATER PROOFING WORKS

1. Supply and fix water proofing where wash basin is, and other plumbing line wall area, as per drawing including all fixing accessories
2. Apply appropriate water proofing in the entire floor area.

F. FLOOR FINISH WORKS

1. Supply and fixing of sand cement screeding works at complete floor area
2. Supply and fixing of self level by using the self levelling cement compound for the proposed simulation area.
3. Supply and installation of anti-bacterial vinyl flooring, 3mm thick.
4. Supply and installation of 100mm ht. SS skirting with end cap to match existing

G. METAL WORKS

1. All necessary support to accommodate false ceiling

H. WALL FINISHING WORKS(PAINT)

1. Apply Jotun Fenomastic Silk to entire wall and ceiling bulkhead, color to be approve
2. Apply anti-bacteria, anti-fungus paint at wall above ceiling

I. CEILING FINISHING WORKS

1. Supply and installation of appropriate false ceiling tiles, RAM as specified.
2. Supply and installation of gypsum bulkhead made by using 12.5mm thick fire rated gypsum board – Knauf.
3. Any other related ceiling finishes required not mentioned above to cover cost of completing above task.

J. SIGNAGE WORKS

1. Supply and fix internal and external signage in English and Arabic. Design and material to match existing. External Sign to address room utilization and Internal is for Control room.

K. ELECTRICAL WORKS

Provide and install all electrical installation and associated accessories and fixtures to complete project as required. Complete installation to follow standard practice in accordance to safety protocols with local authority and adhering to university EHS. Works follows contractor generated layout, approved to include but not limited to wherever deem required;

- I. Low Voltage Switchgear and Distribution Board, Sub-main Distribution Boards
 - o Wall mounted/free standing distribution circuit breaker boards (MCCB Boards) including all incoming and outgoing MCCB's cable terminations etc. based on appropriate load schedule as designed
- II. FINAL DISTRIBUTION BOARDS
 - o Recessed/surface installed final distribution boards (MCB Boards) including incoming ELCB and outgoing circuit MCB's, contactors, cable termination etc.as - should required
- III. ISOLATING SWITCH
 - o Supply, install, test, commission and maintain W.P. disconnect switches including conduits, conduit fittings, wiring, cabling, cable trays, vertical risers, termination disconnect switch, accessories and all necessary ancillary works as specified and required by the drawings. Supply, install, test, commission and maintain W.P. disconnect switches including conduits, conduit fittings, wiring, cabling, cable trays, vertical risers, termination disconnect switch, accessories and all necessary ancillary works as specified and required by the drawings
- IV. CABLES & CABLE SUPPORT SYSTEM
 - o Should require, XLPE Insulated LSF sheathed - Armoured cables from MDB's to SMDB's and from SMDB's to FDB's as shown on the schematic diagram and as per the Local Authority regulations and requirements

3Cx4mm ² XLPE / SWA / LSF + 1Cx4mm ² ECC
4Cx6mm ² XLPE / SWA / LSF + 1Cx6mm ² ECC
4Cx10mm ² XLPE / SWA / LSF + 1Cx10mm ² ECC
4Cx16mm ² XLPE / SWA / LSF + 1Cx16mm ² ECC
4Cx25mm ² XLPE / SWA / LSF + 1Cx16mm ² ECC
4Cx35mm ² XLPE / SWA / LSF + 1Cx16mm ² ECC
 - o Supply and installation and commission Cable trays, cable dusts, GI cable trunking, cable cleats, etc hardware, shop drawings for the rootings and all cable supporting details as per the site requirements to be submitted

(100X 50mm) GI Cable Tray
(150X 50mm) GI Cable Tray
(300X 50mm) GI Cable Tray
(450X 50mm) GI Cable Tray
(600X 50mm) GI Cable Tray
(900X 50mm) GI Cable Tray
(100X 100mm) GI Trunking for Lighting Circuits
(100X 100mm) GI Trunking for Power Circuits

V. WIRING ACCESSORIES WORKS

- o Supply and install conduits, conduit fittings, junction boxes, Wires, draw boxes from final distribution board including all wires and connections for socket outlets.
- o Supply and install as Ditto, but for 13A double switched socket outlets in 1.2meter height
- I. Supply and install as Ditto, but for 13A double switched socket outlets.in 30cm height
- II. Supply and install as Ditto, but for 20A Double Pole Switch & Flex outlet for FCU, VAV, CAV (above the ceiling)
- III. Supply and install as Ditto, but for power connection 230v, 3 core, 2.5mm (above ceiling)
- IV. Supply and install as Ditto, but for 20A Double Pole Water heater switch with indicator light and flex outlet

VI. LIGHTING FIXTURES WORKS

- o Supply, installation, testing and commissioning of Light fittings complete with lamps, tubes, reflectors, control gears, transformers, power supply units and all required fixings accessories, etc. Including ceiling roses and flexible cabling, wiring and conduit and connected the distribution boards & lighting control system, all as shown on the drawings, as specified, as required for proper operation and as per Local Authority requirements.
- o Light Fitting;-IP-65=60X60CM LED PANEL LIGHT
- o Supply and install wiring and conduit in concealed installation including cable trays/ trunking, with all accessories, complete in accordance with specifications, drawings and Local Authority requirements.

VII. SWITCHES WORKS

- I. Supply, install, test, commission switches including all necessary accessories complete in accordance with specifications, drawings and Local Authority requirements.

One way switch, 2 gangs
One way switch, 1 gang - W/P
One way switch, 2 gang - W/P
Two way switch, 2 gangs

VIII. EARTHING SYSTEM WORKS

- I. Provide a complete earthing system including main earth electrode pits, earth continuity conductors, equipotential bonding, etc., all as specified shown on the drawings and DEWA regulations
- II. SUNDRIES;
 - o Allow required testing as may required by the Local Authority
 - o Allow for all painting and identification
 - o Allow for all Builder's work in connection with Electrical System's installation.
 - o Allow for all submittals, samples, shop drawings, As-built Drawings, warranty certificates.

L. HVAC WORKS

- I. Contractor to check, assess, verify existing condition/status in the space required. Accordingly come up with solution to put all related task in completion of the project. Scope to include but not limited to
- II. Supply and installation of new FCU should require, considering normal - operation, negative and positive temperature
- III. Supply and installation of required Hepa filters, adhering to Public Health and Safety due to Covid-19
- IV. Supply and installation of UV inside the duct as may required

1) HYGIENE TYPE FRESH AIR HANDLING UNIT WORKS

- I. Should require: - Supply, install, testing and commissioning of double skin S.S Construction DX Type Air Handling Units complete with, DX coils, plug fans, drains pan, filters, vent, valves, all protective devices, drain to waste, anti-vibration mountings, joints to pipe work and ductwork and all necessary electrical connections as specified and as shown on schedule of equipment.

2) VARIABLE & CONSTANT AIR VOLUME BOXES WORKS

- I. Supply, install, testing and commissioning of factory calibrated (VAV & CAV) variable and constant air volume boxes for variable and constant air system as shown on drawings with integral silencer to meet the specified noise criteria, with or without reheat coil/Electric heating element as specified and as shown on schedule of equipment
- II. Supply, install, testing of Bypass Type VAV's and Pressure Independent CAV's
- III. Supply, install, testing of pressure Independent CAV's with Electrical Reheat Coil

3) GI DUCT WORKS

- I. Supply, install, testing and commissioning of sheet metal air ducts of GI sheets complete for all air systems with all fittings and accessories as per SMACNA construction for 2" WG ducts and as specified, Extract Duct for Labs shall be welded joints, fabricated of SS316
- II. Allow for thermal and acoustic insulation to the supply, return ductwork as required by the specification

- III. Supply, install, testing and commissioning of Sound Attenuators, gravity louvers, fire dampers, flexible ducts, plenums, VCDs, motorized and smoke fire dampers MSFD, Duct silencers, access doors and all duct accessories as shown on drawings and as necessary
- 4) AIR TERMINAL, INLETS AND OUTLETS WORKS
 - I. Supply and install supply, return & extract air terminals including grilles, diffusers, louvers, disc valves, door grill, with all accessories, flexible duct, dampers, as per sizes specified on drawings
- 5) VARIABLE SPEED FREQUENCY CONTROLLERS WORKS
 - I. Supply and install Variable frequency controller having capacities compatible with the motor horse powers.
 - II. Allow for FAHU VFD Panels and Exhaust Fans VFD Panels
- 6) MISCELLANEOUS FOR HVAC WORKS
 - I. Allow for Controls with all necessary accessories & associated wiring
 - II. Allow for Anti vibration mounts
 - III. Allow for Tags and identification plates.
 - IV. Allow for Insulated condensate drain Pipe as Per Spec.
 - V. Allow for Hangers, supports, brackets etc. for pipe and ductwork.
 - VI. Allow for Submittals, samples, shop drawings, As-built Drawings
 - VII. Allow for testing and commissioning of complete system by third party inspector
 - VIII. ADDITIONAL ITEMS;
 Contactor is required add below any additional items with quantities and rates, deemed necessary, not mentioned above, ensuring completion of scope based on above tasks. Stipulated cost for the above shall be the basis of agreement should contractor fail to outline needful. Works to be carried out completely, and to the satisfaction of end users with no additional cost

M. FIRE ALARM WORKS

- I. Allow for relocation of the existing fire alarm system including wiring, smoke detectors, FACP etc. All according to standard in adherence to university health and safety protocols and to Local Authority requirements.
- II. Supply & install the following analogue addressable fire alarm system and outlets complete including pull boxes, conduits, fire rated FP400 cable, address and all necessary fixing accessories all as shown in the drawings & specification.
- III. Supply install and testing of Fire Alarm Control Panel
- IV. Supply install and testing of Analogue Addressable Smoke Detector
- V. Supply install and testing and Void Smoke Detector with remote LED and Analogue Addressable Break Glass Unit
- VI. Addressable Control Module (Quantities to be agreed based on the third-party points of load and subjected to site condition)

I. SUNDRIES;

- Allow for Testing the whole installation at completion in the presence of the Engineer, repeat test as may be required and leave in perfect order and to the satisfaction of the engineer and Local Authority.
- Allow for all painting and identification
- Allow for all Builder's work in connection with Fire Alarm System's installation.
- Allow for all submittals, samples, shop drawings, As-built Drawings, warranty certificates.
- Other related Fire Alarm works required not mentioned above if any

N. FIRE FIGHTING WORKS

I. WET RISER SYSTEM

- Allow for Seamless Galvanized steel tubing and fittings with screwed and flanged joints including all fittings, supports and fixings, of different diameters as per relevant drawings.
- Allow for Relocation of the Existing Fire sprinklers as per the new design and drawings.
- Modification of MEP Services above Ceiling as per new Layout

II. PORTABLE FIRE EXTINGUISHERS

- Allow for 5KG CO2 Type Fire Extinguisher
- Allow for 6KG Dry Type Fire Extinguisher

III. SUNDRIES

- Allow for Testing the whole of the firefighting installation at completion in the presence of the Engineer, repeat test as may be required and leave in perfect order and to the satisfaction of the engineer and Local Authority.
- Allow for all Builder's work in connection with Fire Fighting System's installation
- Allow for all submittals, samples, shop drawings, As-built Drawings, warranty certificates.
- Supply and installation of necessary pipe with complete fittings using entire Immersive room area.
- Draining and refilling of Fire Fighting system
- Pressure Charges
- Other related Fire Fighting works required not mentioned above if any

O. EMERGENCY LIGHTING WORKS

- I.** Relocation of emergency light as per drawings
- II.** Supply & install the following Emergency Lighting & Exit Lighting system and components complete including pull boxes, conduits, cable address and all necessary fixing accessories all as shown in the drawings & specification.
- III.** Supply and install of Emergency Light control Panel
- IV.** Supply and install of Addressable 1x8W Emergency Light, Non Maintained W/P as well as maintained

- V. Supply and install of Addressable 1x8W Exit Light, Maintained, Single Side as well as Double Side
- VI. Allow for Supply and installation of FP400 fire rated stranded cable
- VII. Allow for Supply and installation of cat 6 cable for communication
- VIII. Supply and installation of (100X 100mm) GI Trunking for EM Lighting Circuits
- IX. SUNDRIES
 - o Allow for Testing the whole ELV Systems installation at completion in the presence of the Engineer, repeat test as may be required and leave in perfect order and to the satisfaction of the engineer and Local Authority.
 - o Allow for all painting and identification
 - o Allow for all Builder's work in connection with ELV System's installation.
 - o Allow for all submittals, samples, shop drawings, As-built Drawings, warranty certificates.

P. PLUMBING SYSTEM WORKS

- I. Supply and install for Hot water pipes, fittings, valves shall be PPR pipes with all necessary fittings as manufactured, see list of materials. Catalogues, samples, workshop drawings should be submitted for prior approval.
- II. Supply and install for Complete internal concealed piping in Pex' pipes for hot and cold-water supply including water hammer arrester elsewhere required with all necessary accessories.
- III. WATER HEATER
 - o Supply and installation of Ceiling mounted, horizontal type, electric Water Heater, glass lined, wool insulation, complete with connections for fresh water supply and delivery lines. Each water heater to have valves on both cold and hot water inlet and outlet Capacity 50 liters

Q. INTERNAL DRAINAGE WORKS

- I. Supply and installation for HDPE Drainage pipes fittings, GT, etc. for all medical drainage, as per drawings to diameters required including all necessary fittings. Samples, catalogues, workshop drawings shall be submitted for prior approval.
- II. Supply and installation for PVC Drainage pipes fittings, GT, etc. for Normal drainage, as per drawings to diameters required including all necessary fittings to match existing. Samples, catalogues, workshop drawings shall be submitted for prior approval.
- III. Furnish and install acoustic insulation for all internal drainage pipes works (sewage and storm) passing in false ceiling above OCCUPIED SPACES with all associated works as specified and shown on detail drawings.
- IV. Supply and install condensate drain piping from all fan coil units and air handling units to nearest floor drain complete with cleanout, piping, fitting and all associated works. Indoor piping shall be upvc pipes with 12mm closed cell foam insulation. Rooftop drain lines shall be in GI without insulation
- V. SUNDRIES;
 - o Allow for all submittals, samples, shop drawings, As-built Drawings, warranty certificates, testing & commissioning.

- Allow for all builder's work in connection with plumbing and drainage installation
- Allow for all painting and identification to the installation.
- Rates shall include testing at 150 psi, commissioning of all water supply system
- Drainage system shall be tested as per specifications in the presence of the Consultant & Client representative. This will be considered as part of works acceptance undertaken by contractor.
- allow for water heater necessary area
- Other related works not mentioned above

R. STRUCTURED CABLING WORKS

- I. Supply & install the following structure cabling system outlets complete including pull boxes, conduit cable address and all necessary fixing accessories to complete task given
- II. Supply and install of Intermediate distribution frame (IDF)
- III. Supply and install of Dual/ single RJ45 CAT 6 socket outlets
- IV. Supply and install of Single RJ45 socket outlets for Access control and Single RJ45 socket outlets for CCTV
- V. Supply and install of 3 compartment floor service box
- VI. Supply, installation, T&C for Single and Multimode fiber optic cables as per sizes shown on drawings and according to TRA Requirements.
- VII. Supply and installation of WIFI
- VIII. Supply of IT active components where necessary

S. CABLE TRAY WORKS

- I. Supply and installation and commission Cable trays, cable dusts, GI cable trunking, etc as specified and shown on drawings

(100X 50mm) GI Cable Tray
(150X 50mm) GI Cable Tray
(300X 50mm) GI Cable Tray
(450X 50mm) GI Cable Tray
(600X 50mm) GI Cable Tray
(900X 50mm) GI Cable Tray

T. ACCESS CONTROL SYSTEM WORKS

- I. Supply, install, test, commission and maintain the complete access control system including cabling, wiring, conducting, fittings, accessories and power connections card reader as follow;
 - Door contact
 - Single Magnetic lock
 - Double Magnetic lock
 - Push button
 - Break glass unit
 - Door Controller Unit
 - Door Access Controller

- 220V AC UPS Power supply complete in accordance with specifications, of existing system

U. DATA NETWORKING FOR AV SYSTEM

- I. Supply & install the following Data server looping system and outlets complete including pull boxes, conduits, cable address and all necessary fixing accessories all as shown in the drawings & specification
- II. Supply and installation of data sockets with cat 6 network cable and installation of patch panel with proper labeling (server cabinet excluded)
- III. Supply and installation of AV points wall mounted at 2400mm level as per the drawings
- IV. Supply and installation of AV points on the ceiling as per the drawing
- V. Supply and fixing of GI cable tray with cover above the ceiling

V. CCTV SYSTEM WORKS

- I. Supply & install the following IP CCTV system and outlets complete including pull boxes, conduits, cable address and all necessary fixing accessories all as shown in the drawings & specification. (Subject comply and approval of Monitoring and Control Center “MCC”)
 - CCTV Control Equipment
 - Network Video Recorder with Hard disk
 - CCTV UPS
 - CCTV LED Monitor
 - Dome Camera Recognition Camera
 - Dome Camera Identification Camera
 - Cabling and PVC conducting works

W. MEDICAL GAS WORKS

- I. Supply and installation of medical gas; Oxygen, Air and Vacuum to location as shown in the layout. Contractor to hook up needed feed from existing medical gas lines running in the corridors. Scope to include gas valve receiver, ready to receive equipment. (3x Oxygen, 3x Vacuum and 2x Air point as shown

2.0.2 IMMERSIVE CAVE

A. DEMOLITION WORKS

- I. Removal of unwanted solid block walls wrap material in good condition, cart away to specified store-
- II. Removal of existing wooden doors including all associated works
- III. Removal of unwanted floor finish from the floor area
- IV. Removal of unwanted electrical points from the floor area wall area should there be
- V. Demolition of non-structural elements including all associated works
- VI. Construction debris removal from the floor and send it to municipality dump yard as per regulations

B. CIVIL WORKS

I. PARTITION WORKS

- I. Repair and making good of area/spaces affected by demolition
- II. Supply and making of solid block wall for the immersive class room including plastering
- III. Close out space where double door is to remove with blockwork including plastering
- IV. Supply and Installation of gypsum wall partition made by using 12.5mm thick fire rated gypsum board (Knauf), double sheet on both side including metal frame work and joint tapping for the immersive cave & military area control room wall

II. GYPSUM WALL CLADDING

- o Supply and installation of standard gypsum wall cladding in the entire perimeter wall including 35kg/m³ rockwool insulation ready to receive paint finish

C. JOINERY WORKS

- I. Design, construction, supply and installation of Control room, footprints as indicated in the layout. Partition to be of standard gypsum, complete with 35kg/m³ rockwool insulation. Control room window to be of one-way mirror to match those of the Simulation control and or OSCE observation cove

D. THERMAL AND MOISTURE PROTECTION WORKS

- I. Apply thermal and moisture protection on all items above ceiling as may deem require

E. WATER PROOFING WORKS

- I. Supply and fix water proofing in complete floor area, as per drawing including all fixing accessories

F. FLOOR FINISH WORKS

- I. Supply and fixing sand cement screeding works at complete floor area
- II. Supply and fixing of self level by using the self levelling cement compound for the proposed simulation area
- III. Supply and fix smooth concrete finish with durable floor gray color paint as per drawings(2A)
- IV. Supply and fix smooth concrete finish as per the drawings(3A)
- V. Supply and fix smooth concrete finish as per the drawings(4a)
- VI. Supply and fix smooth concrete finish with durable floor gray color paint as per the drawings(5A)

G. METAL WORKS

GI I BEAM for the storage shutter opening

- I. Create an opening to accommodate shutter door, wall between Store and Simulation space. Opening should be well supported to carry load of automatic roller shutter. Make good of all area affected

- II. Supply and installation of over head automatic roller Shutter for the storage room.

H. WALL FINISHING WORKS

- I. Supply and applying of two coat putty and two coat primer
- II. Supply and applying of cool gray color antibacterial Fenomastic paint area labelled (2B) in the layout
- III. Supply and applying of smooth finish white color antibacterial Fenomastic paint area labelled (3B) in the layout
- IV. Supply and applying of smooth finish white color antibacterial Fenomastic paint area labelled (4B) in the layout
- V. Supply and applying of cool gray color antibacterial Fenomastic paint area labelled (5B) in the layout
- VI. Apply anti-bacterial, anti-fungus paint at wall above ceiling

I. CEILING FINISHING WORKS

- I. Supply and fix integrated pharmaceutical aluminum false ceiling with medical grid (equipped with a clean room grade modular false ceiling, gas tight, able to with stand a 100 Pascal differential pressure without loosed the tightness). black color finish (RAM)
- II. Supply and installation of gypsum bulkhead made by using 12.5mm thick fire rated gypsum board (Knauf)
- III. Supply and applying of two coat putty and two coat primer on gypsum bulkhead
- IV. Supply and applying of antibacterial paint on bulkhead area as per the approved color
- V. Required / specifies elsewhere in the tender documents or required to complete the project according to tender documents forming and conforming the lump sum contract

J. SIGNAGE WORKS

- I. Supply and fix internal and external signage in English and Arabic. Design and material to match existing. External Sign to address room utilization and Internal is for Control room

K. ELECTRICAL WORKS

Provide and install all electrical installation and associated accessories and fixtures to complete project as required. Complete installation to follow standard practice in accordance to safety protocols with local authority and adhering to university EHS. Works follows contractor generated layout, approved to include but not limited to wherever deem required;

- I. Supply and installation of Low Voltage Switchgear and Distribution Board and Low Voltage Switchgear and Distribution Board as per requirements
- II. Wall mounted distribution circuit breaker boards (MCCB Boards) including all incoming and outgoing MCCB's cable terminations etc. as may deem required

L. FINAL DISTRIBUTION BOARDS

- I. Recessed/surface installed final distribution boards (MCB Boards) including incoming ELCB and outgoing circuit MCB's, contactors, cable termination etc.as - should required

M. ISOLATING SWITCH WORKS

- I. Supply, install, test, commission and maintain W.P. disconnect switches including conduits, conduit fittings, wiring, cabling, cable trays, vertical risers, termination disconnect switch, accessories and all necessary ancillary works related to

N. CABLES & CABLE SUPPORT SYSTEM

- I. Should require, following standard cables and support to be observe and or otherwise contractor to continue whatever already exist. XLPE Insulated LSF sheathed - Armoured cables from MDB's to SMDB's and from SMDB's to FDB's. Execution and design should adhere with safety and local regulation standard

4Cx6mm ² XLPE / SWA / LSF + 1Cx6mm ² ECC
4Cx10mm ² XLPE / SWA / LSF + 1Cx10mm ² ECC
4Cx16mm ² XLPE / SWA / LSF + 1Cx16mm ² ECC
4Cx25mm ² XLPE / SWA / LSF + 1Cx16mm ² ECC
4Cx35mm ² XLPE / SWA / LSF + 1Cx16mm ² ECC

- II. Supply and installation and commission Cable trays, cable dusts, GI cable trunking, cable cleats, etc hardwares, shop drawings for the routings and all cable supporting details as per the site requirement -to be submitted

(100X 50mm) GI Cable Tray
(150X 50mm) GI Cable Tray
(300X 50mm) GI Cable Tray
(450X 50mm) GI Cable Tray
(600X 50mm) GI Cable Tray
(900X 50mm) GI Cable Tray
(100X 100mm) GI Trunking for Lighting Circuits
(100X 100mm) GI Trunking for Power Circuits

O. WIRING ACCESSORIES WORKS

- I. Supply and install as Ditto, but for 13A double switched socket outlets. (W/P-IP56/65) in floor boxes
- II. Supply and install as Ditto, but for 13A double switched socket outlets. (W/P-IP56/65) Above the ceiling.
- III. Supply and install as Ditto, but for 13A double switched socket outlets.3000mm height from the FFL
- IV. Supply and install as Ditto, but for SP industrial socket
- V. Supply and install as Ditto, but for 20A Double Pole Switch & Flex outlet for FCU, VAV, CAV

- VI. Supply and install as Ditto, but for power connection 230v, 3 core, 2.5mm for the floor box and one above the ceiling
- VII. Supply and install as Ditto, but for 3 compartment floor service box

P. LIGHTING FIXTURES WORKS

- I. Supply, installation, testing and commissioning of Light fittings complete with lamps, tubes, reflectors, control gears, transformers, power supply units and all required fixings accessories, etc., including ceiling roses and flexible cabling, wiring and conduit and connected the distribution boards & lighting control system.
- II. Design and placement and light intensity to be calculated according to standard
- III. Supply and install of Light Fitting; -IP-65=60X60CM LED PANEL LIGHT
- IV. Supply and install wiring and conduit in concealed installation including cable trays / trunking, with all accessories, complete in accordance with specifications, drawings and ADWEA requirements

Q. SWITCHES WORKS

- I. Supply, install, test, commission switches including all necessary accessories complete in accordance with specifications, drawings and ADWEA requirements

One way switch, 1 gang
One way switch, 2 gangs
One way switch, 3 gangs
Two way switch , 1 gang
Two way switch, 2 gangs

R. EARTHING SYSTEM WORKS

- I. Provide a complete earthing system including main earth electrode pits, earth continuity conductors, equipotential bonding, etc., all as specified, shown on the drawings and ADWEA regulations
- II. Sundries- allow for Testing the whole Electrical installation at completion in the presence of the Engineer, repeat test as may be required and leave in perfect order and to the satisfaction of the engineer and Local Authority.
- III. Allow for all painting and identification
- IV. Allow for all Builder's work in connection with Electrical System's installation.
- V. Allow for all submittals, samples, shop drawings, As-built Drawings, warranty certificates.

S. HVAC WORKS

- I. Contractor to check, assess, verify existing condition/status in the space required. Accordingly come up with solution to put all related task in completion of the project. Scope to include but not limited to
- II. Supply and installation of new AC Units with FCU and maintaining negative, positive and normal temperature pressure at different cabins
- III. Supply and installation of required Hepa filters
- IV. Supply and installation of UV Using inside the duct

T. HYGIENE TYPE FRESH AIR HANDLING UNIT WORKS

- I. Should require: - Supply, install, testing and commissioning of double skin S.S Construction DX Type Air Handling Units complete with, DX coils, plug fans, drains pan, filters, vent, valves, all protective devices, drain to waste, anti-vibration mountings, joints to pipe work and ductwork and all necessary electrical connections as specified and as shown on schedule of equipment

U. VARIABLE & CONSTANT AIR VOLUME BOXES WORKS

- I. Supply, install, testing and commissioning of factory calibrated (VAV & CAV) variable and constant air volume boxes for variable and constant air system as shown on drawings with integral silencer to meet the specified noise criteria, with or without reheat coil/Electric heating element as specified and as shown on schedule of equipment
- II. Supply, install, testing of Bypass Type VAV's and Pressure Independent CAV's
- III. Supply, install, testing of pressure Independent CAV's with Electrical Reheat Coil

V. GI DUCT WORKS

- I. Supply, install, testing and commissioning of sheet metal air ducts of GI sheets complete for all air systems with all fittings and accessories as per SMACNA construction for 2" WG ducts and as specified, Extract Duct for Labs shall be welded joints, fabricated of SS316
- II. Allow for thermal and acoustic insulation to the supply, return ductwork as required by the specification
- III. Supply, install, testing and commissioning of Sound Attenuators, gravity louvers, fire dampers, flexible ducts, plenums, VCDs, motorized and smoke fire dampers MSFD, Duct silencers, access doors and all duct accessories as shown on drawings and as necessary

W. AIR TERMINAL, INLETS AND OUTLETS WORKS

- I. Supply and install supply, return & extract air terminals including grilles, diffusers, louvers, disc valves, door grill, with all accessories, flexible duct, dampers, as per sizes specified on drawings

X. VARIABLE SPEED FREQUENCY CONTROLLERS WORKS

- I. Supply and install Variable frequency controller having capacities compatible with the motor horse powers.
- II. Allow for FAHU VFD Panels and Exhaust Fans VFD Panels

Y. MISCELLANEOUS FOR HVAC WORKS

- I. Allow for Controls with all necessary accessories & associated wiring
- II. Allow for Anti vibration mounts
- III. Allow for Tags and identification plates.
- IV. Allow for Insulated condensate drain Pipe as Per Spec.
- V. Allow for Hangers, supports, brackets etc. for pipe and ductwork.
- VI. Allow for Submittals, samples, shop drawings, As-built Drawings
- VII. Allow for testing and commissioning of complete system by third party inspector

- VIII. ADDITIONAL ITEMS- Contactor is required add below any additional items with quantities and rates, deemed necessary, not mentioned above, ensuring completion of scope based on above tasks. Stipulated cost for the above shall be the basis of agreement should contractor fail to outline needful. Works to be carried out completely, and to the satisfaction of end users with no additional cost

Z. FIRE ALARM WORKS

- II. Allow for relocation of the existing fire alarm system including wiring, smoke detectors, FACP etc. All according to standard in adherence to university health and safety protocols and to Local Authority requirements.
- III. Supply & install the following analogue addressable fire alarm system and outlets complete including pull boxes, conduits, fire rated FP400 cable, address and all necessary fixing accessories all as shown in the drawings & specification.
- IV. Supply install and testing of Fire Alarm Control Panel
- V. Supply install and testing of Analogue Addressable Smoke Detector
- VI. Supply install and testing and Void Smoke Detector with remote LED and Analogue Addressable Break Glass Unit
- VII. Addressable Control Module ((Quantities to be agreed based on the third-party points of load and subjected to site condition)
- VIII. SUNDRIES- Allow for Testing the whole installation at completion in the presence of the Engineer, repeat test as may be required and leave in perfect order and to the satisfaction of the engineer and Local Authority.
- IX. Allow for all painting and identification
- X. Allow for all Builder's work in connection with Fire Alarm System's installation.
- XI. Allow for all submittals, samples, shop drawings, As-built Drawings, warranty certificates.
- XII. Other related Fire Alarm works required not mentioned above if any

AA. FIRE FIGHTING WORKS

- I. WET RISER SYSTEM
 - o Allow for Seamless Galvanized steel tubing and fittings with screwed and flanged joints including all fittings, supports and fixings, of different diameters as per relevant drawings.
 - o Allow for Relocation of the Existing Fire sprinklers as per the new design and drawings.
 - o Modification of MEP Services above Ceiling as per new Layout
- II. PORTABLE FIRE EXTINGUISHERS
 - o Allow for 5KG CO2 Type Fire Extinguisher
 - o Allow for 6KG Dry Type Fire Extinguisher
- III. SUNDRIES
 - o Allow for Testing the whole of the firefighting installation at completion in the presence of the Engineer, repeat test as may be required and leave in perfect order and to the satisfaction of the engineer and Local Authority.

- Allow for all Builder's work in connection with Fire Fighting System's installation
- Allow for all submittals, samples, shop drawings, As-built Drawings, warranty certificates.
- Supply and installation of necessary pipe with complete fittings using entire Immersive room area.
- Draining and refilling of Fire Fighting system
- Pressure Charges
- Other related Fire Fighting works required not mentioned above if any

BB. EMERGENCY LIGHTING WORKS

- I. Relocation of emergency light as per drawings
- II. Supply & install the following Emergency Lighting & Exit Lighting system and components complete including pull boxes, conduits, cable address and all necessary fixing accessories all as shown in the drawings & specification.
- III. Supply and install of Emergency Light control Panel
- IV. Supply and install of Addressable 1x8W Emergency Light, Non Maintained W/P as well as maintained
- V. Supply and install of Addressable 1x8W Exit Light, Maintained, Single Side and Double Side as well
- VI. Allow for Supply and installation of FP400 fire rated stranded cable
- VII. Allow for Supply and installation of cat 6 cable for communication
- VIII. Supply and installation of (100X 100mm) GI Trunking for EM Lighting Circuits
- IX. SUNDRIES
 - Allow for Testing the whole ELV Systems installation at completion in the presence of the Engineer, repeat test as may be required and leave in perfect order and to the satisfaction of the engineer and Local Authority.
 - Allow for all painting and identification
 - Allow for all Builder's work in connection with ELV System's installation.
 - Allow for all submittals, samples, shop drawings, As-built Drawings, warranty certificates.

CC. STRUCTURED CABLING WORKS

- I. Supply & install the following structure cabling system outlets complete including pull boxes, conduit cable address and all necessary fixing accessories to complete task given
- II. Supply and install of Intermediate distribution frame (IDF)
- III. Supply and install of Dual/ single RJ45 CAT 6 socket outlets
- IV. Supply and install of Single RJ45 socket outlets for Access control and Single RJ45 socket outlets for CCTV
- V. Supply and install of 3 compartment floor service box
- VI. Supply, installation, T&C for Single and Multimode fiber optic cables as per sizes shown on drawings and according to TRA Requirements.
- VII. Supply and install WIFI
- VIII. Supply and install IT Active components where necessary

DD. CABLE TRAY WORKS

- I. Supply and installation and commission Cable trays, cable dusts, GI cable trunking, etc as specified and shown on drawings

(100X 50mm) GI Cable Tray
(150X 50mm) GI Cable Tray
(300X 50mm) GI Cable Tray
(450X 50mm) GI Cable Tray
(600X 50mm) GI Cable Tray
(900X 50mm) GI Cable Tray

EE. ACCESS CONTROL SYSTEM WORKS

- I. Supply, install, test, commission and maintain the complete access control system including cabling, wiring, conducting, fittings, accessories and power connections card reader as follow;
 - o Door contact
 - o Single Magnetic lock
 - o Double Magnetic lock
 - o Push button
 - o Break glass unit
 - o Door Controller Unit
 - o Door Access Controller
 - o 220V AC UPS Power supply complete in accordance with specifications, of existing system

FF. DATA NETWORKING FOR AV SYSTEM

- I. Supply & install the following Data server looping system and outlets complete including pull boxes, conduits, cable address and all necessary fixing accessories all as shown in the drawings & specification
- II. Supply and installation of data sockets with cat 6 network cable and installation of patch panel with proper labeling
- III. Supply and installation of AV points wall mounted at 2400mm level as per the drawing
- IV. Supply and installation of AV points on the ceiling as per the drawing
- V. Supply and fixing of GI cable tray with cover above the ceiling
- VI. Supply and installation of data points with cat 6 network cable
- VII. Supply and installation of data points with cat 6 network cable above the ceiling
- VIII. Supply and installation of HDMI cable

GG. CCTV SYSTEM WORKS

- I. Supply & install the following IP CCTV system and outlets complete including pull boxes, conduits, cable address and all necessary fixing accessories all as shown in the drawings & specification. (Subject comply and approval of Monitoring and Control Center “MCC”)
 - o CCTV Control Equipment
 - o Network Video Recorder with Hard disk
 - o CCTV UPS

- CCTV LED Monitor
- Dome Camera Recognition Camera
- Dome Camera Identification Camera
- Cabling and PVC conducting works

2.0.3 TESTING CENTER

A. DEMOLITION WORKS

- I. Removal of unwanted partition walls, ceiling tiles & bulkhead and other related materials on floor, wrap for possible re-use
- II. Demolish wall adjacent to MEP vent shaft to create space as corridor, passage going from test room to toilet vise-versa. Scope to ensure front wall of office space accommodates double glass wall with door to match existing
- III. Demolition of existing 2 no. office space to accommodate construction and buildout of new Female Toilet, securely wrap material with bubble plastic, cart away to specified store., Scope includes making goo of all surfaces affected
- IV. Contractor to provide accounting of related materials for records and handing-over

B. CIVIL WORKS

- I. Convert existing 2 no. of closed offices to accommodate FEMALE Toilet as shown in the layout. Scope to include all interior fit out, ceiling, cubicles, tiles, sanitary fit out and accessories and water proofing
- II. Perimeter wall with 200mm thick blockworks, interior wall at slop sink - 100mm thick, all to match existing
- III. Contractor to check existing door opening- Quiet Space, ensuring that size of wheelchair can easily go In-Out. If found not, contractor to modify opening to accommodate standard width of wheelchair. Scope include making good of all surfaces affected and supply and installation of the glass door with frame - tempered complete with ironmongery
- IV. Supply and installation of 100mm thick gypsum board partitions, consisting of 72mm GI tracks, 70mm GI studs, Rockwool insulation - density of 35kg/m3 and double layer of 12.5mm thick gypsum board on each side as shown in the layout but has not been constructed yet. It is to vendor discretion to check existing against whats made available in the site, build as required. Works includes, taping, sanding, jointing etc. ready to receive final finish
- V. Prepare existing Copy room to accommodate new Pantry. Scope to include providing hot and cold water supply, floor and wall drain. Appropriate size of hot water tank complete with Korean top counter with double bowl SS sink, overhead and under counter cabinet - all to match existing
- VI. Modify, repair curtain, drapes as may deem required - Test area. Supply and installation of new otherwise if not found to exist, to match existing- 21 bays
- VII. Supply and installation of window glazed double, one-way mirror - Proctor's room. Design and concept to match Simulation Control room in the 4th floor - building B

- VIII. Supply and installation of double-glazed partition, 6+88+6 clear glass, tempered - Office and at adjacent corridor above
- IX. Supply and installation of frameless glass partition, including single leaf door - tempered complete ironmongery - new corridor between Office and MEP shaft
- X. Fabricate, supply and installation of laminate door - single leaf, complete with ironmongery to match existing. Standard height to match with width as indicated in the layout - Office & Store
- XI. Fabricate, supply and installation of laminate door - single leaf, interior details with honeycomb for sound absorbent, with double glazed 6mm thick, tempered clear glass vision panel, complete with ironmongery. Door to be fully sealed by means of rubber moulding, preventing In-Out noise, one side of the door shall be incorporated with sound proofing material covered in washable fabric material. Standard height to match with width as indicated in the layout - Proctor's Room- 2no.
- XII. Fabricate, supply and installation of laminate door - double leaf, interior details with honeycomb for sound absorbent, with double glazed 6mm thick, tempered clear glass vision panel, complete with ironmongery. Door to be fully sealed by means of rubber moulding, preventing In-Out noise, one side of the door shall be incorporated with sound proofing material covered in washable fabric material. Standard height to match with width as indicated in the layout - Proctor's Room-4no.
- XIII. Build up, continue decorative wooden partition to fill gap. Scope to include emergency door to match complete with ironmongery
- XIV. Supply and installation of drop down segmented, fully acoustic, sound proof partition - motorized (automatic)
- XV. Supply and installation of turnstile, 3 bays, 1 for handicap. Turnstile is to match existing, including supply of power, access system connected to existing. To be link to the Registration counter.
- XVI. Supply and installation of sandblasted film on glass partitions and doors-
- XVII. Supply and installation of 2-compartment lockers to match existing
- XVIII. All existing door keys to be check, ensuring that keys - cylinder are in good operational condition. Scope to include supply and installation of new set - master key system should exist found to be un-operational and or doors are without lockset
- XIX. Design, supply and installation of wall mounted signage to read as "Testing Center" in Arabic and English. Material and finishes to match existing
- XX. Design, supply and installation of wall mounted signage, Faculty user's / room names with title plus room # in all rooms, Arabic and English. Material and finishes to match existing

C. FLOOR FINISH WORKS

- I. Supply and installation of heavy-duty sound absorbent raised floor system covering the 2 - Testing Area
- II. Supply and installation of 8mm thick carpet tiles: - solution dyed nylon type 6.6, glass bac backing (no bitumen) tufted loof, static protection, anti-stain protection, environmentally friendly, indoor air quality certified with

flammability rating, lifetime antimicrobial protection, at least 10 years manufacturing - Test space

- III. Supply and application of concrete screed to the level required matching existing corridor as appropriate - Office and Store and Toilet
- IV. Supply and application of leveling compound to accommodate new floor finish - Office, store and Toilet
- V. Supply and installation of Class III solid vinyl tiles, 3mm thick, chemical and slip resistance. Environmentally friendly and indoor Air Quality Certified. Installation, VOC free adhesive and levelling compound, LEED and Green certified -Office & store
- VI. Supply and installation of granite/ceramic tiles in the new Female toilet and Pantry, to match existing
- VII. Termination of joints, ramp, between existing floor finish and new by means of threshold, floor grip, strips wherever needed

D. WALL FINISHING WORKS

- I. Supply and installation of ceramic tiles to match existing - Pantry and Toilet
- II. Prepare and apply Jotun Fenomastic silk paint finish to new partition and existing walls and partitions. Color to match or as required
- III. Supply and installation of 100mm high SS skirting to match existing, covering all walls and partitions
- IV. Apply anti-bacterial, anti-fungus paint at walls above false ceiling

E. CEILING FINISHING WORKS

- I. Supply and installation of plain gypsum ceiling, 12.5mm thick gypsum board on GI framing to suit proposed layout. Conceptual design to match existing
- II. Supply and installation of aluminum tiles to match, complete with suspension system to suit proposed layout
- III. Supply and installation of vertical bulkhead, 12.5mm thick gypsum board, single layer on GI frame suspension
- IV. Prepare and apply Jotun Fenomastic silk paint finish to new gypsum ceiling and bulkhead. Color to match or as required

F. JOINERY WORKS

- I. Design, fabricate, supply and installation of custom-made Reception counter, footprint as indicated in the layout. All outside surface to be of Corian finish.
- II. Design, fabricate, supply and installation of Decorative wood panel divider, 2200mm FFL. - Waiting Room

G. LIGHTING WORKS

- I. Supply of linear light, length 1200mm to match existing. Contractor to design atmospheric light following standard lighting lux appropriate to room activities, with sensor. Lighting to be done in 2 zones with On-Off switch

H. ELECTRICAL WORKS

- I. Supply and Installation of light fittings including conduitng and wiring, quantity as determined line item 1 of lighting above

- II. Supply and installation of lighting override switches
- III. Relocation of existing sensors should exist
- IV. Supply and installation of Lighting sensor and control module
- V. Containment and wiring for modification and upgrade of lighting control system should require
- VI. Testing and commissioning of Lighting Control System
- VII. Supply and installation of 13A power socket -twin, including conduiting and wiring
- VIII. Supply and installation of 13A spur outlet, including conduiting and wiring for VAV
- IX. Supply and installation of floor box, including conduiting and wiring
- X. Modification of existing DB as to fit - assuming that existing DB have enough spare and load to accommodate additional load requirement
- XI. Supply and installation of DB upgraded to accommodate all load requirement in case line item 12 above found to be insufficient
- XII. Modification of GI trunking for power and lighting
- XIII. PVC containment for wall mounted data points
- XIV. PVC containment for floor mounted - floor box, data points
- XV. Modification of cable tray to accommodate new data cabling
- XVI. Supply and installation of CCTV including cabling and conduiting. Works to include system configuration, all in accordance with and approval of local authority
- XVII. Supply and installation of Digital Clock - network, including conduiting and wiring
- XVIII. Other electrical related works not mentioned above if any to complete task

I. HVAC WORKS

- I. Modification, supply and installation of A/C supply and return as appropriate. Scope to include Temperature control per office space, room and corridor. Type, concept and operational to match existing
- II. Relocation of existing fan coil unit including valve packaged as may deem required
- III. Supply and installation of new bypass VAV including accessories
- IV. Supply and installation of new Fan Coil Unit as may deem required, including Thermostat, valve package, chilled water and drain pipe with insulation. Works to include supply of 20A DP switch. All works to include conduiting and wiring. Contractor to his discretion, to have 3rd party survey and assessment in able to determine sufficiency of supply
- V. Modification of existing chilled water pipe with insulation
- VI. Supply and installation of thermostat for VAV
- VII. Supply and installation of PI Duct for supply and air duct
- VIII. Supply and installation of Plenum box
- IX. Supply and installation of Supply & Return Slot Diffuser
- X. Relocation of existing thermostat wherever required
- XI. Modification of condensate drain pipe with insulation
- XII. Modification of existing BMS as may deem required to accommodate new Bypass VAV and relocation as per the drawings

- XIII. Reprogramming, Testing and Commissioning of BMS system
- XIV. Chilled water flow test and performance test for existing AC units
- XV. Contractor to ensure sufficient cooling is achieving, considering humidity etc.
- XVI. Other related HVAC works required not mentioned above if any to complete task
- XVII. Works as may require to be carried out ensuring that entire space is free from warm air and moistures

J. FIRE ALARM WORKS

- I. Removal and relocation of existing Smoke Detector
- II. Supply and installation of Smoke Detector including fire rated cabling following international and local standard and regulation protocols
- III. Supply and installation of break glass including fire rated cabling
- IV. Supply and installation of sounder including fire rated cabling
- V. Disable, Reprogramming, testing and Commissioning of Fire Alarm system
- VI. Other related Fire Alarm works required not mentioned above if any to complete task

K. FIRE FIGHTING WORKS

- I. Relocation of existing Pendant Sprinkler as deemed fit
- II. Supply and installation of Pendant Sprinkler including fire rated cabling following international and local standard and regulation protocols
- III. Draining and refilling of Fire Fighting system
- IV. Do pressure charges as per regulation standard
- V. Shop drawing preparation and coordination with Civil Defense approval
- VI. Supply and installation set of Fire Extinguishers following safety standard
- VII. Other related Fire Fighting works required not mentioned above if any to complete task

L. EMERGENCY LIGHTING WORKS

- I. Removal and reinstallation of existing Exit light
- II. Supply and installation of emergency exit light including conduiting and wiring following international standard regulation and protocols
- III. Disable, Reprogramming, testing and Commissioning of Emergency Lighting system (assume that existing CBS Panel have enough capacity to accommodate additional light)
- IV. Supply and installation of additional circuit card should required
- V. Other related Emergency lighting works required not mentioned above if any to complete task

M. STRUCTURED CABLING WORKS

- I. Supply and install of UTP CAT 6a structured cabling for voice and data, including pulling, termination, face plate to match existing, RJ45 module, termination and labeling
- II. Supply and install of Patch cord 1 meter, 1 no per data point
- III. Supply and install of Patch cord 3 meter, 1 no. per data point

- IV. 24 port patch panel cat 6a or as deem required, fiber cabling with accessories - for Etisalat connection - 6 core single mode, fiber patch panel, single mode adapters, single mode sc/apc pigtails, sleeves, fiber cable pulling and splicing, fiber fluke testing etc.
- V. Supply and install of 42U Rack
- VI. All above to conform with given scope of works in accordance with the layout given
- VII. Supply and install WIFI
- VIII. Supply and Install IT Active components where necessary
- IX. Other related works not mentioned above to complete task

N. AUDIO / VIDEO WORKS

- I. Complete work is to provide comprehensive solution as fully describe in the scope of works. Contractor/vendor is to submit design, detailed BOQ, specific catalogs of proposed items- please refer to AV SOW document

2.0.4 BALSAM

A. CIVIL/ PARTITION WORKS

- I. Supply and installation of 100mm thick gypsum board partitions, consisting of 72mm GI tracks, 70mm GI studs, Rockwool insulation - density of 35kg/m3 and single layer of 12.5mm thick gypsum board on each side as shown in the layout but has not been constructed yet. It is to vendor discretion to check existing against whats made available in the site. Works includes, taping, sanding, joiting etc. ready to recieve final finish
- II. Supply and installation of double-glazed partition, 6+88+6 clear glass, tempered as well as DITTO, windows in the gypsum partitions
- III. Fabricate, supply and installation of powder coated aluminum framed single leaf glass-swing door, tempered complete with ironmongery. Standard height to match with width as indicated in the layout
- IV. Remove, modify, repair existing single leaf door, door jamb, frames and accessories including ironmogenries to fit as Emergency Exit Door. If, however existing door found to be not feasible, contractor to supply and install proper Emergency Exit door, compliant to safety standard and protocols. Existing door and all its accessoried to be securely wrap with bubble plastic, cart away to specified location. See clouds "A" in the layout.
- V. Remove existing double leaf door, door jamb, frames and accessories including ironmogenries. Securely wrap in bubble plastic, cart away to specified store. Fabricate, supply and installation of powder coated aluminum frameless double leaf glass-swing door, tempered complete with ironmongery. See clouds "B" in the layout
- VI. Supply and installation of sandblasted film on glass partitions and doors
- VII. Modify, repair curtain, drapes as may deem required to fit partitioning layout. Supply and installation of new otherwise if not found in existence, to match existing for 3 room
- VIII. Design, supply and instalation of wall mounted signage to read as "Balsam Community Outreach" in Arabic and English. Material and finishes to match existing

- IX. Design, supply and instalation of wall mounted signage, Faculty users / room names with title plus room # in all rooms, Arabic and English. Material and finishes to match existing

B. FLOOR FINISH WORKS

- I. Supply and application of concrete screed to the level required matching existing corridor as appropriate
- II. Supply and application of concrete screed to the level required matching existing corridor as appropriate
- III. Supply and installation of 8mm thick carpet tiles: - solution dyed nylon type 6.6, glas bac backing (no bitumen) tufted loof, static protection, anti stain protection, environemntally friendly, indoor air qulity certified with flamability rating, lifetime antimicrobial protection, at least 10 years manufacturing – Offices
- IV. Supply and installation of 3mm thick vinyl tiles: - ASTM F1700, Class III solid vinyl tiles, resilient flooring with 1.0 wear layer thickness, sound reduction of 17dB min. slip resistance, chemicl resistance, flammability/smoke emission - ASTM E648, class 1, Tensile strenght upto 4000lbs/sq.inch, static load, environmentally friendly, indoor Air quality certified at least 10 years of manufacturers defect warranty. Offices corridors, Reception and Conference room
- V. Termination of joints between existing floor finish and new by means of threshold, floor grip, strips wherever needed and as appropriate

C. WALL FINISHES WORKS

- I. Prepare and apply Jotun Fenomastic silk paint finish to new partition and existing walls and partitions. Color to match or as required
- II. Supply and installation of 100mm high SS skirting to match existing, covering all walls and partitions
- III. Apply anti-bacterial, anti-fungus paint at wall above ceiling

D. CEILING FINISHES WORKS

- I. Supply and installation of plain gypsum ceiling, 12.5mm thick gypsum board (RAM) on GI framing to suit proposed layout. Conceptual design to match existing
- II. Supply and installation of aluminum tiles to match, complete with suspension system to suit proposed layout
- III. Supply and installation of vertical bulkhead, 12.5mm thick gypsum board, single layer on GI frame suspension
- IV. Prepare and apply Jotun Fenomastic silk paint finish to new gypsum ceiling and bulkhead. Color to match or as required

E. JOINERY WORKS

- I. Design, fabricate, supply and installation of custom-made Reception counter and cabinet, footprint as indicated in the layout, laminated finish for counter and mobile pedestal to match existing

F. LIGHTING WORKS

- I. Supply of linear light, length 1200mm to match existing. Contrator to design atmospheric light following standard lighting lux appropriate to room activities, with sensor
- II. Supply and installation of downlighter with powered factor ballast wherever indicated

G. ELECTRICAL WORKS

- I. Installation of light fittings including conduitng and wiring
- II. Supply and installation of lighting override switches
- III. Relocation of existing sensors should exist
- IV. Supply and installation of Lighting sensor
- V. Supply and installation of control module
- VI. Supply and install necessary containment and wiring for modification and upgrade of lighting control system
- VII. Testing and commissioning of Lighting Control System
- VIII. Supply and installation of 13A power socket - single, including conduiting and wiring
- IX. Supply and installation of 13A power socket -twin, including conduiting and wiring
- X. Supply and installation of 13A spur outlet, including conduiting and wiring for VAV
- XI. Supply and instalaltion of floor box, including conduiting and wiring
- XII. Modification of existing DB as per proposed layout - assuming that existing DB have enough spare and load to accommodate additional load requirement
- XIII. Supply and installation of DB upgraded to accommodate all load requirement in case line item 12 above found to be insufficient
- XIV. Modification of GI trunking for power and lighting
- XV. PVC containment for wall mounted data points
- XVI. PVC containment for floor mounted - floor box, data points
- XVII. Modification of cable tray to accommodate new data cabling
- XVIII. Supply and installation of CCTV including cabling and conduiting. Works to include system configuration and integration, all in accordance with and approval of local authority
- XIX. Supply and installation of Digital Clock - network, including conduiting and wiring
- XX. Electrical civil related works
- XXI. All system, testing, commissioning and integration required
- XXII. Other electrical related works not mentioned above if any to complete task

H. HVAC WORKS

- I. Modification, supply and installation of A/C supply and return as appropriate. Scope to include Temperature control per office space, room and corridor. Type, concept and operational to match existing.
- II. Supply and installation of new bypass VAV including accessories
- III. Relocation of existing Fan coil Unit including valve packaged as may deem required

- IV. Supply and installation of new Fan coil Unit as may deem required, including Thermostat, valve package, chilled water and drain pipe with insulation. Works to include supply of 20A DP switch. All works to include conduiting and wiring. Contractor to his discretion, to have 3rd party survey and assessment in able to determine sufficiency of supply
- V. Modification of existing chilled water pipe with insulation
- VI. Supply and installation of thermostat for VAV
- VII. Supply and installation of PI Duct for supply and air duct
- VIII. Supply and installation of Plenum box
- IX. Supply and installation of Supply & Return Slot Diffuser
- X. Relocation of existing thermostat wherever required
- XI. Modification of condensate drain pipe with insulation
- XII. Modification of existing BMS as may deem required to accommodate new Bypass VAV and relocation
- XIII. Reprogramming, Testing and Commissioning of BMS system
- XIV. Chilled water flow test and performance test for existing AC units
- XV. Other related HVAC works required not mentioned above if any to complete task

I. FIRE ALARM WORKS

- I. Removal and relocation of existing Smoke Detector
- II. Supply and installation of Smoke Detector including fire rated cabling following international and local standard and regulation protocols
- III. Supply and installation of break glass including fire rated cabling
- IV. Supply and installation of Sounder including fire rated cabling
- V. Disable, Reprogramming, testing and Commissioning of Fire Alarm system
- VI. Other related Fire Alarm works required not mentioned above if any to complete task

J. FIRE FIGHTING WORKS

- I. Relocation of existing Pendant Sprinkler as deemed fit
- II. Supply and installation of Pendant Sprinkler including fire rated cabling following international and local standard and regulation protocols
- III. Draining and refilling of Fire Fighting system
- IV. Pressure charges and testing as per safety standard
- V. Shop drawing preparation and coordination with Civil Defense approval
- VI. Supply and installation sets of Fire Extinguishers following safety standard
- VII. Other related Fire Fighting works required not mentioned above if any to complete task

K. EMERGENCY LIGHTING WORKS

- I. Relocation of emergency light
- II. Removal and reinstallation of existing Exit light
- III. Supply and installation of Emergency exit light including conduiting and wiring following international standard regulation and protocols

- IV. Disable, Reprogramming, testing and Commissioning of Emergency Lighting system (assume that existing CBS Panel have enough capacity to accommodate additional light)
- V. Supply and installation of additional circuit card should require

L. STRUCTURED CABLING WORKS

- I. Supply and installation of UTP CAT 6a structured cabling for voice and data, including pulling, termination, face plate to match existing, RJ45 module, termination and labeling
- II. Patch cord 1 meter, 1 no per data point and Patch cord 3-meter, 1 no. per data point
- III. 24 port patch panel cat 6a or as deem required, fiber cabling with accessories - for Etisalat connection - 6 core single mode, fiber patch panel, single mode adapters, single mode sc/apc pigtails, sleeves, fiber cable pulling and splicing, fiber fluke testing etc.
- IV. 42U Rack, contractor to check should required
- V. All above to conform with given scope of works in accordance with the layout given
- VI. Other related works not mentioned above to complete task
- VII. Supply and install WIFI
- VIII. Supply and install IT Active components where needed

M. FURNITURE INSTALLATION WORKS

- I. Installation of office furniture from internal resources as per the layout, not limited to;
- II. L-Shape desk including pedestal
- III. Install, modify existing free standing fabric panel partition to suit
- IV. Task chair, Visitors chair, Meeting table, Meeting chair and Cabine

2.0.5 VIVIRIUM

A. CIVIL WORKS

1) WATER PROOFING WORKS

- I. Apply liquid water proofing membrane (to manufacturer's recommendation) to horizontal and vertical surface (for minimum 125 mm height) incl. smoothening of concrete slab and cement-sand angle fillets- 1650 SQM

2) BLOCK WORKS

- I. All external blockworks in insulated thermal concrete blocks (with polystyrene inserts / fixed) with machine mixed cement-sand mortar incl. reinforced with stainless steel wall ties and mesh horizontally fixed, movement joints, jointing and pointing, complete all as shown on drawings and as specified
- II. Supply and making of solid blockwork- 250 mm (all external), 200mm thick (all external) and 100mm thick solid non-insulated blockwork (all external)

- III. Supply and making of all internal walls in non-structural concrete hollow block with machine mixed cement-mortar, reinforced GI wall ties and mesh horizontally fixed, incl. control joints, complete all as shown on drawings and as specified
- IV. Supply and installation of 200mm hollow block work (internal walls) and 100mm hollow block works (internal block)
- V. SUNDRIES;
 - RCC lintels on 250 mm thk external walls
 - Precast GI lintels on 200 / 150 / 100 mm thk internal walls
 - Filling voids in blockworks, jambs and cills

3) INTERNAL PLASTERING WORKS

- I. Providing and applying average 12mm thk plaster in single coat to all internal surfaces at all levels in masonry / concrete surfaces. Plaster to be finished rough/ smooth to receive corresponding finishes as required, as per drawings and details including preparation of surface, hacking, & cleaning, providing and fixing expanded metal mesh of 20 gauge extending 75 mm on either side of the junctions of concrete & masonry /electrical conduit, making grooves at the junctions of masonry & RCC, chamfering and rounded angles up to 80 mm girth, curing, cleaning etc. complete as directed by the consultant.

4) WALL FINISHING WORKS

- I. Providing and Applying Washable Emulsion Paint System: First coat shall be PVA co-polymer-based primer for internal use with volume solids 16% as per ISO 3233 / 1998 (E). Second & third coats shall be PVA co-polymer-based stucco filler with volume solids 52% as per ISO 3233 / 1998 (E). Fourth & fifth coats shall be of high-quality acrylic co-polymer-based emulsion paint with outstanding wash ability and colour retention properties to provide smooth and durable matt / silk finish with volume solids 44% as per ISO 3233 / 1998 (E).
- II. Providing and Applying Washable Emulsion Paint System: First coat shall be PVA co-polymer-based primer for internal use with volume solids 16% as per ISO 3233 / 1998 (E). Second & third coats shall be PVA co-polymer-based stucco filler with volume solids 52% as per ISO 3233 / 1998 (E). Fourth & fifth coats shall be of high-quality acrylic co-polymer based emulsion paint with outstanding wash ability and colour retention properties to provide smooth and durable matt / silk finish with volume solids 44% as per ISO 3233 / 1998 (E). The top coat to have the following properties/test certificates: -Crack tolerance of up to 1.00 mm (total DFT of top coats to be 100 microns' min). Classified for surface spread of flame to BS 476: Part 7:1997 as Class 1Y. Special anti fungal and anti bacterial independent test certificate. Excellent flow and levelling, good opacity and highly washable finish.
- III. Supply and Fixing, VITRIFIED TILE CLADDING of 300X600MM approved make, size, thickness and design fixed in line level and plumb matching its joints with corresponding floor joints with proper jointing in pigmented

- white cement finishing complete and as directed by the consultant. Epoxy grouting to be considered in tech clinical areas
- IV. Supply and Fixing 20 mm thk, 600X600 MARBLE WALL CLADDING of approved shade, size and design to be laid in line level and plumb matching its joints with corresponding floor joints and proper jointing in pigmented white cement finishing complete as per drawing and as approved by the consultant. The base of the marble shall be bitumen painted
 - V. Supply & Fixing 2/3 MM thick wall cladding with lead sheets from FFL to slab soffit in radiation rooms
 - VI. Supply & installation of Radio Frequency (RF) shielding for MRI room as per the specification document provided. vendor to hire Specialist Contractor to carry out all requirement related to. Full coordination is required from start of construction making sure that all material and equipment related can be accommodated, trouble free
 - VII. Supply & installation of Fermacell board / Class 100/ HPB wall of 12.5 mm thickness, with necessary supports, seamless finish with antibacterial/ paint, primer etc. as applicable. The partition shall go upto 150mm high above false ceiling. To Be Carried Out by Specialist Contractor. Main contractor to allow for all coordination

5) PARTITION WORKS

- I. Providing and fixing Full Ht. Gypsum Partition as per design, fixed with Vertical Aluminum Struts going upto Structural member for proper support and covered with 8mm MDF sheet of exterior grade cladded with One Hour Fire Rated, rockwool insulation for acoustic protection, Gypsum sheets fully taped, filled and levelled smooth, preparing surface to receive primer and paint. Rate to include for cutouts with framework for switch-sockets, Thermostats etc. finishing complete as per design and as directed by the Interior Designer. The partition shall go upto 150mm high above the false ceiling level
- II. Same as above but with cementitious sheets

6) SCREEDING WORKS

- I. Supply and laying screed below FFL achieving the required floor level to receive the finished flooring material as per the drawings and as approved by the consultant. The finished surface to be smooth and level without any undulation. Provisions shall be provided for all the services laid under the FFL
- II. Supply and Fixing 600X600X 20mm thk 1st grade Marble Flooring in combination and pattern to be laid in line, level and plumb with proper jointing in pigmented white cement/ epoxy grout finishing complete as per the drawings and as approved by the consultant. The base of the marble shall be polythene lacquered painted

- III. Supply and laying 1st quality 600X600MM VITRIFIED TILE flooring of approved make, size, thickness and design fixed in line, level and plumb, with proper jointing finished in pigmented white cement as per drawing and as approved by the consultant. The vitrified tile shall have proper sharp edges and finished with hairline joints
- IV. Supply and fixing of 2mm thick non-directional, Homogenous printed VINYL FLOORING (PVC) from approved manufacturer's in Roll Form for a moderate Commercial Traffic, treated with PUR and Sanitized and Anti Bacteria Treatment. Rate shall include an average 5 mm self levelling compound to achieve even horizontal receiving surface for the Vinyl flooring. include seamless skirting up to 100mm of the same material with end capping. Rate shall include the corresponding cold welding of the matching design, colour and fixed as per manufacturer's instructions finishing complete as per drawing and as approved by the project consultant
- V. Supply and applying EPOXY PAINT consisting of base agent and curing agent compound, of standard proportion, flooring including 100 MM coving, to be brushed, rolled or troweled upon the coating into place of specified thickness.

7) SKIRTING WORKS

- I. Supply and Fixing 20 mm thk, recessed 100mm high marble skirting in line level and plumb, matching its joints with corresponding floor joints and proper jointing in pigmented white cement, finishing complete and as directed by the Consultant. The maximum projection of the skirting shall be not more than 5mm from the finished wall surface. The base of the marble shall be bitumen painted.
- II. Supply and Fixing, VITRIFIED TILE skirting of approved make, size, thickness and design fixed in line level and plumb matching its joints with corresponding floor joints with proper jointing in pigmented white cement, with maximum project of the skirting not be more than 5mm from the finished wall surface finishing complete and as directed by the consultant.

8) FALSE CEILING WORK AND WALL PANELLING WORKS

- I. Providing/ Cutting openings in the ceiling and vertical drops for light fittings and a.c. supply and return air grilles etc. with necessary surround frame. Necessary access panel as required to be considered
- II. Providing necessary Ply / MDF backing for installation of the light fittings. Shadow grooves to be considered for ceiling transitions
- III. Gypsum bulkhead within 100 mm depth shall be considered as apart of gypsum plain gypsum ceiling works & no separate rate will be entertained
- IV. Providing and Fixing 12 mm thk Plain Gypsum Ceiling fixed on a GI suspension system as per design and as indicated in the drawings issued by consultant. The Gypsum sheets shall be taped, filled and levelled smooth, Jointing compound of approved quality to be used, preparing surface to receive primer and paint. Rate to include for cut-outs with wooden

framework for light fixtures, A.C. Diffusers, speakers, etc. finishing complete as per design and as directed by the Consultant

- V. Providing & fixing 600x600mm Grid suspension system with Regular edges with Mineral Fiber Tiles with acoustic protection AND MICROLOOK GRID SYSTEM
- VI. Providing & fixing 600x600 mm concealed Grid suspension system with Mineral Fibre Clean Room Ceiling panel
- VII. Providing & fixing of 600X600 Grid Ceiling with 6mm Grid suspension system with Calcium Silicate Tiles of approved sample and make and having Regular edges
- VIII. Supply and installation of Curtain Pelmet

9) DOORS & WINDOWS WORKS

- I. Providing and Fixing all doors and windows as per drawing with all necessary accessories, fire rating and lead lining as per drawings

B. MEP Builder's works

- I. Excavation for laying various service lines
- II. Construction of manholes, gully traps, access chambers as required for all MEP services
- III. Provide concrete foundations / pedestals / bedding for MEP equipment's, pipe supports etc. as required.
- IV. Anti vibration pedestal shall be done with all necessary details as shown with third party certificate/study if required
- V. Provide access platforms / crossing steps (in EPOXY painted steel sections) above ceiling over MEP service lines and at roof as required.
- VI. Providing sleeves, cutouts, voids, subsequent repair and making good including filling with approved fire sealant as required for MEP works.
- VII. Allow for all co-ordination with statutory authorities
- VIII. Allow for other builder's works as mentioned in preamble to BoQ
- IX. Supply & install acoustic under layer as per specification
- X. Supply & install transition strip in metal finish for different flooring & wall as required

C. AIR- CONDITIONING AND VENTILATION SERVICES

- I. Supply and Installation of FAHUS (Hygiene type with SS 316 drain panes with valve packages, Vibration mounts / pads along with BMS compatibility as per the specifications and HVAC drawings
- II. Supply and Installation of Air handling units, double skin type, (all hygiene type) with all fittings and accessories, control damper with neoprene gasket, damper stop, damper actuator, room thermostat, with temperature, pressure & RH controls with BMS compatibility as per ASHRAE standards with latest precision controls, access doors suitable for hospital applications

- III. Supply and installation of VAV & CAV box including casing, all fittings and accessories, control damper with neoprene gasket, damper stop, damper actuator, room thermostat, with temperature, pressure & RH controls with BMS compatibility as per ASHRAE standards with latest precision controls, access doors as required
- IV. Supply and installation of Extract fans including all accessories, fittings, dampers, vibration mounts etc. as detailed in drawings and schedule complete
- V. Supply, install, testing of Extract & Makeup Fans c/w all fittings & accessories along with installation conforming to local authority requirements
- VI. Fixing the thermostats [As per the HVAC design drawings with BMS compatibility]
- VII. Provide the supply and Return diffusers (Circular) With VCDs & other accessories
- VIII. Supply and install of Supply & return diffuser size 4" dia – 32" dia
- IX. Provide the Supply & return registers as per the HVAC drawings, size to be mentioned & quantified as per drawings
- X. Louvres/Sand Trap Louvres as per the HVAC drawings, size to be mentioned & quantified as per drawings
- XI. Supply and installation of GI Ducting for HVAC services complete, including for fresh air, supply/return air, extract air including all civil works in walls slabs, suspensions, supports, fire dampers, VCD'S, flexible connectors, duct acoustic liner, thermal insulation, aluminum cladding(exterior), reducers for various sizes as per specification & drawings for the hospital building
- XII. Supply and installation of SS ducts for all kitchen extract ducting(Hood). Consider electrostatic precipitator at the exit of kitchen extract system as per DM requirements
- XIII. Apply Non-ferrous ducting with insulation along with non-ferrous supports for MRI Room
- XIV. Supply and install of Digital Pressure Differential Manometers for special rooms
- XV. To comply the below general points for the complete Installations
 - o Drawings, manuals, approvals and instructions books
 - o Testing and commissioning
 - o Labels, special tools, etc.
 - o Protective and decorative painting
 - o Coordination and liaison with all Local Authorities
 - o Main connections to water-main
 - o Specific builder's work including ducts, sleeves, support, etc., complete
 - o General builder's work including cutting chasing, making goods, etc., complete
 - o Close all the duct & pipe penetrations across side walls & slabs as per the CDA requirements using fire rated materials

D. DRAINAGE INSTALLATIONS

- I. Should require, uPVC pipe work of any kind (waste, soil, condensate, vent, rainwater), including UV ray protection to exposed pipe work, insulation, all supports, accessories, rodding eyes, earthworks (if required), complete as below
 - 150 mm dia pipe
 - 100 mm dia pipe
 - 75 mm dia pipe
 - 50 mm dia (pressure line)
 - Vent pipe 75 mm dia
 - Ditto 100 m dia
 - Vent cowl 75 mm dia
 - Ditto 100 mm
 - Upvc pipe fittings/ADPE
 - 150 mm dia 45 deg. bend
 - 150 mm T- junction
 - 150 mm dia 90 deg. bend
 - 100 mm dia 90 deg. bend
 - 75 mm dia 90 deg. bend
 - Pipe in Pipe system for drainage joints as per drawings
 - HDPE pipe system for hot water drains
- II. To comply the below general points for the complete Installations
 - Drawings, manuals, approvals and instruction books
 - Testing and commissioning
 - Labels, special tools, etc.
 - Protective and decorative painting
 - Coordination and liaison with all Local Authorities
 - Final connections to Main-sewer
 - Specific builder's work including ducts, sleeves, supports, etc., complete
 - General builder's work including cutting chasing, making good, etc., complete
 - Contractor has to fulfill the latest Green building requirements of DM
 - The Contractor will list here and price any items shown on the Drawings, mentioned in the Specifications or required for the satisfactory completion of this section but not mentioned elsewhere in the BOQ. Any such items not listed below shall be deemed to be included :
 - Contractor to allow construction of chemical bed/tank to convert chemical into water and salt before liquids goes to municipality drainage

E. COLD WATER INSTALLATION WORKS,

- I. Supply and installation of Pipe work including pumps, fittings, fixing accessories, isolating valves, return valves, supports, PEX pipes, earthworks (if required), etc., complete (from 20mm dia to 100mm dia and 25mm dia/ 32mm dia to the R.O unit).
- II. Cold water final connection to sanitary ware including accessories etc., complete

F. HOT WATER INSTALLATION WORKS

- I. Supply and installation of Hot water pipe work including fittings, fixing, accessories, valves, supports, PEX pipes, earth work (if required) etc., complete (from 15mm dia to 75mm dia)
- II. Provide hot water final connection to sanitary ware, including accessories etc., complete
- III. Supply and making the Insulation for hot water pipe work as specified

G. PUMP SETS

- I. Pump sets including valves, flexible connections, strainers, test, points, pressure gauges, controllers, fixing, accessories, PRVs, NRVs & other valves, Gauges, Water hammer arrestors etc., complete as per the drawings and as per the local Authority requirements
- II. Supply and installation of R.O unit complete including circular pump, pump set, UV, ss 316 water tank, softener pump set, plant heat exchanger, all necessary accessories, connections, pipes, valves as shown on drawings W-205 & W-701
- III. Supply and installation of Sanitary fixtures including all types of valves, traps, fittings, fixing, accessories, complete as below;
 - a. European water closet including cistern
 - b. Ablution hand spray
 - c. Pedestal mounted wash basin
 - d. Counter type wash basins
 - e. Mixer set for above
 - f. Shower tray
 - g. Mixer set for shower
 - h. Sink with double bowl and single drain
 - i. Mixer set for sink
 - j. Hot & Cold water outlet
 - k. Bib tap
 - l. Mop sink
 - m. Slop Sink for soiled work rooms
 - n. Scrub Sink
 - o. Plaster Sink
 - p. Any other fitting /accessories as per drawing
 - q. To comply the below general points for the complete Installations
 - o Drawings, manuals, approval and instruction books
 - o Testing and commissioning
 - o Labels, special tools, etc.
 - o Protective and decorative painting
 - o Coordination and liaison with all Local Authorities
 - o Main connections to water-main
 - o Specific builder's work including ducts, sleeves, supports, etc., complete
 - o General builder's work including cutting chasing, making good, etc., complete
 - o Consider fire sealant/foam sealant for all the water supply & drainage penetrations across the slabs & walls.

- Contractor has to fulfill the latest Green building requirements of ADDC

H. FIRE FIGHTING WORKS

The following including civil works, fittings, fixing, connections, accessories as per drawing complete

- I. Supply and install of Sprinkler head concealed, powder coated, 15mm orifice
- II. Supply and install of Ceiling void sprinklers as required
- III. Provide the Horizontal side wall sprinkler head 15mm orifice
- IV. Supply and fixing of 4.5Kg dry powder fire extinguisher and 5.0 Kg CO2 fire extinguisher
- V. Fire hose reel cabinet with enclosure (FHRC) complete as per drawings. SS enclosure cabinets required only for basement floors & service areas. Remaining areas FHRC enclosure shall be as per Interior scheme of the hospital project
- VI. FF system for robotic parking as per approved drawings
- VII. Automatic swinging type hose reel 25 mm dia 30 m long
- VIII. Supply and fixing of 2 way breaching inlet including recessed cabinet (for wet & dry riser) as per drawings and Sprinkler zone control valve
- IX. Pre-action valve along with necessary connections for the fire protection as per drawing
- X. Supply and install of FM 200 system and Foam System as per drawings
- XI. Supply and fixing the Pipe for sprinkler head including supports, painting, markers, all fittings, reducers, Zone control valves with flow switches and accessories complete with ID labels as per drawings (25mm dia to 150mm dia)
- XII. To comply the below general points for the complete Installations
 - Drawings, manuals, approvals and instruction books
 - Testing and commissioning
 - Labels, special tools, etc.
 - Protective and decorative painting
 - Coordination and liaison with all Local Authorities
 - Final connections from service authorities
 - Specific builder's work including ducts, sleeves, supports, etc., complete
 - General builder's work including cutting chasing, making goods, etc., complete
 - All the fire installations should as per the current CDA requirements and all the fire systems should have compatibility with Fire Alarm, BMS, Smoke Management Systems and also with all other building automation system. Contractor has to fulfill the latest Green building requirements of ADM

I. ELECTRICAL INSTALLATION WORKS

- I. Diesel Generator complete with main control panel including 4P ACB, batteries, exhaust pipe, and all accessories to fix the DG set
- II. Provide the Sub main distribution boards/Distribution boards including, breakers, termination, isolators, supports, accessories, capacity bank, mccbs, built in meters, fuses, complete including cable termination, gladding and installation.

- III. Provide the Distribution boards and Motor Control Centers including, breakers, terminations, isolators, supports, accessories, capacity bank, mccbs, built in meters, fuses, complete including cable termination, glanding and installation.
- IV. Supply and lay the Cables, conduits, and ceiling rose (wherever applicable) in final sub-circuits to
- V. Provide the Cabling including trays, accessories, etc., complete as below require

4C 185 mm2 CU/XLPE/SWA/PVC + 1C 95mm2 CPC
4C 95 mm2 CU/XLPE/SWA/PVC + 1C 50mm2 CPC
4C 70 mm2 CU/XLPE/SWA/PVC + 1C 35mm2 CPC
4C 50 mm2 XLPE/SWA/PVC + 1C 25mm2 CPC
4C 35 mm2 XLPE/SWA/PVC + 1C 25mm2 CPC
4C 25 mm2 CU/XLPE/SWA/PVC + 1C 16mm2 CPC
4C 16 mm2 XLPE/SWA/PVC + 1C 16mm2 CPC
4C 6 mm2 CU/ XLPE/SWA/PVC + 1C 6mm2 CPC
4C 4 mm2 CU/ XLPE/SWA/PVC + 1C 4mm2 CPC
3C 4 mm2 CU/XLPE/SWA/PVC

- VI. Supply and installation of Light fittings, Switches and Flex outlet as per the drawings
- VII. Supply and Installation of light fittings (as per lighting layout) as follows;
 - Double tube LED lamp surface mounted moisture proof (IP65)
 - 600 x 600 52 watt LED (IP20)
 - 600 x 600 52 watt LED (IP44)
 - Clean room fitting 100 watt
 - 27 watt LED tube lighting
 - 14 watt LED mirror light (IP44)
 - Mirror light LED tube (IP 44)
 - 100-watt decorative pendant light
 - LED strip light
 - 19 watt 4000 K LED downlight
 - 36 watt 4000 K LED downlight
 - 19 watt 4000 K LED downlight (IP44)
 - 36 watt 4000 K LED downlight DC voltage operation for specified radiology applications
 - 100-watt decorative surface mounted light fixtures
 - 2 x 26 compact fluorescent lamp (IP44)
 - 100 watt wall mounted decorative light
- VIII. Supply and Installation of Electrical accessories including trays, containment, terminations, support, fitting etc., complete (as per lighting layout) as follows;
 - 20A SP lighting 1 gang 1-way switch
 - 20A SP lighting 1-way switch w/p (weather proof)

- 20A SP lighting 3 gang 1-way switch
- 20A SP lighting 2 gang 1-way switch
- 20A SP lighting 1 gang 2-way switch
- 20A SP lighting 1 gang 2-way switch w/p
- 20A SP lighting 2 gang 2-way switch
- 20A SP lighting 5 gang 1-way switch
- Timer Switch
- Dimmer switch 4 gang
- 20A SP lighting 3 gang 2-way switch
- 20A SP lighting 4 gang 1-way switch
- Flex outlet

J. Earthing System Works

- I. Earthing system including all cables, earth rods, accessories, and the inspection pits with cover including the connecting cables (yellow/green coded) and copper bars as per specification
 - Drawings, manuals, approvals and instruction books
 - Testing and commissioning
 - Labels, special tools, etc.
 - Protective and decorative painting
 - Coordination and liaison with all Local Authorities
 - Final connections from service authorities
 - Specific builder's work including ducts, sleeves, supports, etc., complete
 - General builder's work including cutting chasing, making goods, etc., complete

K. LOW CURRENT WORKS

- I. Supply and installation of Access control and time management system server (attendance system) including all accessories card printer alarm printer, digital camera, monitors including cabling and containment for the connectivity between devices as per design,
- II. Provide the Access control devices including door contacts, door locks, access card readers, push buttons and break glass,
- III. Public address music system rack, including a microprocessor controlled audio matrix switch, zone amplifier rack audio system music source as specified and P.A system server,
- IV. Supply and install of Microphone with zone selector and Ceiling speaker,
- V. Provide the Volume control rotary switches, for the schematic as well as floor wise layout.
- VI. Supply and fixing the Music over ride unit for local music system to collection
- VII. Supply and installation of CCTV system with 2 no. s 42" monitors connected to DVR's as required based on the cameras and the number of channels available on the DVR. System to be complete with all interconnecting cables between cameras, DVR's and servers
- VIII. CCTV camera wall mounted Pan Tilt & Zoom (weather proof), CCTV camera fixed/dome with Night vision cameras

L. VOICE DATA SYSTEM WORKS

- I. Voice Data system including containment, cabling and all accessories, connections outlets complete as per drawings
- II. Supply and installation of Voice Data MDT located in the server room, main Etisalat incoming connection to the ODF in the main Etisalat room and their interconnectivity with fiber optic cable as given in the single line diagram for telephone system,
- III. Voice Data IDT connectivity
- IV. Fire Alarm Control Panel
- V. Main Distribution Terminal
- VI. Provide the Telephone with jack socket outlet position
- VII. Provide the Telephone jack socket outlet position wall mounted type
- VIII. WIFI
- IX. IT Active Components

M. FIRE ALARM SYSTEM WORKS

- I. Fire Alarm system include cables, (normal and fire resistant) conduits, GI trunking , connections etc., complete
- II. Supply and installation of Fire Alarm Control Panel and repeater panel
- III. Photo electric smoke sensor for ceiling void with remote indicator for each void detector
- IV. Supply, fixing, testing of Photo electric smoke sensor, heat sensor, Manual Call point, Sounder with Flasher Sounder without strobe flasher, Sounder with flasher (W/P) and Beam detector transmitter/ receiver
- V. Emergency lighting system including cabling (normal/fire resistant) connections, accessories complete
- VI. Supply and installation of 8W Emergency light(EL) non maintained
- VII. Supply and Installation of 8w exit light with pictogram as indicated and maintained (wall mounted/ weather proof/ decorative type)
- VIII. Supply and Installation of Decorative / building lights to be integrated with central battery system as per design
- IX. Supply and install of Junction box for F. A. cables
- X. Laying of cables in trenches complete including all civil works connections, terminations, backfilling
- XI. Provide the F.A. cables in UPVC pipes in trenches
- XII. Allow Coordination for 24 x 7 CDA main panel.
- XIII. To comply the below general points for the complete Installations
 - o Drawings, manuals, approval and instruction books
 - o Testing and commissioning
 - o Labels, special tools etc.,
 - o Protective and decorative painting
 - o Coordination and liaison with local Authority
 - o Final connections from service authorities
 - o Specific builders work including ducts, sleeves, supports etc., complete
 - o General builders work including cutting chasing, making good etc., complete
 - o Include for the supply & complete installation as detailed in the specification and on the etc. contd.,

N. ADDITIONAL ITEMS

Contractor is required to add below any additional items with quantities and rates, deemed necessary, not mentioned above, ensuring ADCD compliance and completion of scope based on above tasks.

2.0.6 CLINICAL SKILLS

A. DEMOLITION WORKS

- I. Removal of unwanted partition walls wrap materials in good condition, cart away to specified store
- II. Removal of unwanted ceiling tiles and materials
- III. Removal of unwanted floor finish
- IV. Safely removal of furniture and fit out, cart away for reinstallation should require
- V. Contractor to provide accounting of related materials for records and handing-over

B. CIVIL/ PARTITION WORKS

- I. Supply and installation of blockworks, where specified. Internal and perimeter thickness to match existing
- II. Supply and installation of 100mm thick gypsum board partitions, consisting of 72mm GI tracks, 70mm GI studs, Rockwool insulation - density of 35kg/m³ and single layer of 12.5mm thick gypsum board on each side. Works includes, taping, sanding, jointing etc. ready to receive final finish
- III. Supply and installation of double glazed partition, 6+88+6 clear glass, tempered
- IV. DITTO, windows in the gypsum partitions
- V. Fabricate, supply and installation of powder coated aluminum framed single leaf glass-swing door, tempered complete with ironmongery. Standard height to match with width as indicated in the layout
- VI. Remove existing single leaf door, door jamb, frames and accessories including ironmongeries. Securely wrap in bubble plastic, cart away to specified store. Fabricate, supply and installation of double glazed window - 6+88+6, 1m from FFL, height to match elevation of exterior doors, close gap with double layer gypsum board at each sides. See clouds "A" in the layout.
- VII. Remove existing double leaf door, door jamb, frames and accessories including ironmongeries. Securely wrap in bubble plastic, cart away to specified store. Fabricate, supply and installation single leaf emergency exit door, complete with push bar and other related exit ironmongery. close half of the width with blockworks. See clouds "B" in the layout
- VIII. Remove existing double leaf door, door jamb, frames and accessories including ironmongeries. Securely wrap in bubble plastic, cart away to specified store. Fabricate, supply and installation of powder coated aluminum framed double leaf glass-swing door, tempered complete with ironmongery. See clouds "C" in the layout

- IX. Fabricate, supply and installation of fire rated laminate door with vision panel, single leaf, complete with ironmongery to match existing. Standard height to match with width as indicated in the layout
- X. Supply and installation of sandblasted film on glass partitions and doors
- XI. Modify, repair curtain, drapes as may deem required to fit partitioning layout
- XII. All door KEYS to be of Master Keying system
- XIII. Design, supply and installation of wall mounted signage to read as "Clinical Skills Support" in Arabic and English. Material and finishes to match existing
- XIV. Design, supply and installation of wall mounted signage, Faculty users name and title plus room # in all rooms, Arabic and English. Material and finishes to match existing

C. JOINERY WORKS

- I. Design, fabricate, supply and installation of custom made Reception counter and cabinet, footprint as indicated in the layout, laminated finish for counter and mobile pedestal, gypsum with adjustable 8mm thick glass shelves, to match existing
- II. Fabricate, supply and installation of fire rated laminate door with vision panel, double leaf, complete with ironmongery to match existing. Standard height to match with width as indicated in the layout

D. LIGHTING WORKS

- I. Supply of linear light, length 1200mm to match existing. Contractor to design atmospheric light following standard lighting lux appropriate to room activities, with sensor
- II. Supply and installation of down lighter with powered factor ballast wherever indicated

E. ELECTRICAL WORKS

- I. Installation of light fittings including conduiting and wiring
- II. Supply and installation of lighting override switches
- III. Relocation of existing sensors should exist
- IV. Supply and installation of Lighting sensor and control module
- V. Containment and wiring for modification and upgrade of lighting control system
- VI. Testing and commissioning of Lighting Control System
- VII. Supply and installation of 13A power socket - single, including conduiting and wiring
- VIII. Supply and installation of 13A power socket -twin, including conduiting and wiring
- IX. Supply and installation of 13A spur outlet, including conduiting and wiring for VAV
- X. Supply and installation of floor box, including conduiting and wiring
- XI. Modification of existing DB as per proposed layout - assuming that existing DB have enough spare and load to accommodate additional load requirement
- XII. Supply and installation of DB, upgraded to accommodate all load requirement in case line item 12 above found to be insufficient
- XIII. Modification of GI trunking for power and lighting

- XIV. PVC containment for wall mounted data points
- XV. PVC containment for floor mounted - floor box, data points
- XVI. Modification of cable tray to accommodate new data cabling
- XVII. Supply and installation of CCTV including cabling and conduiting. Works to include system configuration, all in accordance with and approval of local authority
- XVIII. Supply and installation of Digital Clock - network, including conduiting and wiring
- XIX. Other electrical related works not mentioned above if any

F. HVAC WORKS

- I. Modification, supply and installation of A/C supply and return, in offices and corridor space as appropriate. Scope to include Temperature control per office space and corridor. Type, concept and operational to match existing.
- II. Supply and installation of new bypass VAV including accessories
- III. Relocation of existing Fan Coil Unit including valve packaged as may deem required
- IV. Supply and installation of new Fan Coil Unit as may deem required, including Thermostat, valve package, chilled water and drain pipe with insulation. Works to include supply of 20A DP switch. All works to include conduiting and wiring. Contractor to his discretion, to have 3rd party survey and assessment in able to determine sufficiency of supply
- V. Modification of existing chilled water pipe with insulation
- VI. Supply and installation of thermostat for VAV and PI Duct for supply and air duct
- VII. Supply and installation of Plenum box and Supply & Return Slot Diffuser
- VIII. Relocation of existing thermostat wherever required
- IX. Modification of condensate drain pipe with insulation
- X. Modification of existing BMS as may deem required to accommodate new Bypass VAV and relocation
- XI. Reprogramming, Testing and Commissioning of BMS system
- XII. Chilled water flow test and performance test for existing AC units
- XIII. Other related HVAC works required not mentioned above if any

G. FIRE ALARM WORKS

- I. Removal and relocation of existing Smoke Detector
- II. Supply and installation of Smoke Detector including fire rated cabling following international and local standard and regulation protocols
- III. Supply and installation of break glass including fire rated cabling
- IV. Supply and installation of Sounder including fire rated cabling
- V. Disable, Reprogramming, testing and Commissioning of Fire Alarm system
- VI. Other related Fire Alarm works required not mentioned above if any

H. FIRE FIGHTING WORKS

- I. Relocation of existing Pendant Sprinkler as deemed fit
- II. Supply and installation of Pendant Sprinkler including fire rated cabling following international and local standard and regulation protocols

- III. Draining and refilling of Fire Fighting system
- IV. Do required pressure Charges as per standard regulation
- V. Shop drawing preparation and coordination with Civil Defense approval
- VI. Supply and installation, sets of Fire Extinguishers following safety standard
- VII. Other related Fire Fighting works required not mentioned above if any

I. EMERGENCY LIGHTING WORKS

- I. Relocation of emergency light
- II. Removal and reinstallation of existing Exit light
- III. Supply and installation of Emergency exit light including conduiting and wiring following international standard regulation and protocols
- IV. Disable, Reprogramming, testing and Commissioning of Emergency Lighting system (assume that existing CBS Panel have enough capacity to accommodate additional light)
- V. Supply and installation of additional circuit card should required

J. STRUCTURED CABLING WORKS

- I. Supply and install of UTP CAT 6a structured cabling for voice and data, including pulling, termination, face plate to match existing, RJ45 module, termination and labeling
- II. Supply and install of Patch cord 1 meter, 1 no per data point
- III. Supply and install of Patch cord 3 meter, 1 no. per data point
- IV. 24 port patch panel cat 6a or as deem required, fiber cabling with accessories - for Etisalat connection - 6 core single mode, fiber patch panel, single mode adapters, single mode sc/apc pigtails, sleeves, fiber cable pulling and splicing, fiber fluke testing etc.
- V. Supply and install of 42U Rack
- VI. All above to conform with given scope of works in accordance with the layout given
- VII. Supply and install WIFI
- VIII. Supply and install IT Active component where required
- IX. Other related works not mentioned above to complete task

K. FURNITURE INSTALLATION WORKS

- I. Installation of office furniture from internal resources as per the layout, not limited to;
 - o L-Shape desk including pedestal
 - o Task chair
 - o Visitors chair
 - o Round meeting table
 - o Cabinet

2.0.7 2nd FLOOR OFFICE SPACE

A. DEMOLITION WORKS

- I. Demolition and or clearing of items visible not required to this project, includes clearing of unwanted items in floor, wall and ceiling. Prepare surface to accommodate task as stated under categories
- II. Contractor to provide accounting of related materials for records and handing-over
- III. Removal of existing double leaf door, complete with frames, architraves and ironmongeries, wrap material in bubble plastic, cart away to specified store. Scope to include making good of all affected areas ready to receive frameless glass door
- IV. Demolition of non-structural elements including all associated works
- V. Construction debris removal from the floor and send it to municipality dump yard as per regulations

B. CIVIL WORKS(PARTITION)

- I. Supply and installation of double-glazed partition, 6+88+6 clear glass, tempered
- II. DITTO, windows in the gypsum partitions, between two offices
- III. Fabricate, supply and installation of powder coated aluminum framed single leaf glass-swing door, tempered complete with ironmongery. Standard height to match with width as indicated in the layout
- IV. Fabricate, supply and installation of powder coated aluminum frameless double leaf glass-swing door, tempered complete with ironmongery. Standard height to match with width as indicated in the layout
- V. Supply and installation of sandblasted film on glass partitions and doors, design to match existing
- VI. Supply and installation of 100mm thick gypsum board partitions, consisting of 72mm GI tracks, 70mm GI studs, Rockwool insulation - density of 35kg/m³ and single layer of 12.5mm thick gypsum board on each side as shown in the layout but has not been constructed yet. It is to vendor discretion to check existing against whats made available in the site. Works includes, taping, sanding, jointing etc. ready to receive final finish
- VII. All door KEYS to be accessed of Master Keying system
- VIII. Design, supply and installation of wall mounted signage in Arabic and English - Departmental name to be given at a later stage. Material and finishes to match existing
- IX. Design, supply and installation of wall mounted signage, Faculty users name and title plus room # in all rooms, Arabic and English. Material and finishes to match existing
- X. Contractor to check, repair all existing doors, frames, architraves and ironmongery making sure that all are well and good
- XI. Supply and installation of perforated roller drapes to match existing in all windows. Contractor to ensure that curtain cove, space to accommodate and hang mechanical rollers are properly in place

C. FLOOR FINISH WORKS

- II. Repair and make good all areas affected by removal and or setting up partition floor profile and embedding floor boxes and necessary trunking
- III. Apply appropriate thickness concrete screed including leveling compound to prepare entire space to receive vinyl
- IV. Supply and installation of 3mm thick vinyl tiles: - ASTM F1700, Class III solid vinyl tiles, resilient flooring with 1.0 wear layer thickness, sound reduction of 17dB min. slip resistance, chemical resistance, flammability/smoke emission - ASTM E648, class 1, Tensile strength upto 4000lbs/sq.inch, static load, environmentally friendly, indoor Air quality certified at least 10 years of manufacturers defect warranty. Offices corridors, Reception and Conference room
- V. Supply and installation of 8mm thick carpet tiles: - solution dyed nylon type 6.6, glas bac backing (no bitumen) tufted loof, static protection, anti stain protection, environmentally friendly, indoor air quality certified with flammability rating, lifetime antimicrobial protection, at least 10 years manufacturing
- VI. Supply and installation 40x40 and or 60x60 ceramic tiles
- VII. Termination of joints between existing floor finish and new by means of threshold, floor grip, strips wherever needed and as appropriate

D. WALL FINISHING WORKS

- I. Prepare and apply Jotun Fenomastic silk paint finish to new partition and existing walls and partitions. Color to match or as required. Rooms: A02026a, A02087 and A02020
- II. Supply and installation of 100mm high SS skirting to match existing, covering all walls and partitions
- III. Supply and installation 40x40 ceramic tiles appropriately
- IV. Apply anti-bateria, anti-fungus paint at walls above false ceiling

E. JOINERY WORKS

- I. Supply and installation of Kitchen Counter, Corian top finish, double bowl SS sink with H/C mixer, complete with under counter standard cabinetry and overhang cabinet. Dimension as shown in the layout
- II. Design, supply and installation of Reception counter, dimension base in the footprint and shown in the layout. Laminate finish with box/box/file mobile pedestal. Concept to match existing in 3rd floor offices block in building A

F. CEILING FINISHING WORKS

- I. Supply and installation of plain gypsum ceiling, 12.5mm thick gypsum board on GI framing to suit proposed layout
- II. Supply and installation of aluminum tiles to match, complete with suspension system to suit proposed layout
- III. Supply and installation of vertical bulkhead, 12.5mm thick gypsum board, single layer on GI frame suspension
- IV. Prepare and apply Jotun Fenomastic silk paint finish to new gypsum ceiling and bulkhead. Color to match or as required

G. LIGHTING WORKS

- I. Supply of linear light, length 1200mm to match existing. Contractor to design atmospheric light following standard lighting lux appropriate to room activities. Vendor to design spaces as appropriate
- II. Supply and installation of downlighter with powered factor ballast wherever indicated - above reception counter

H. ELECTRICAL WORKS

Provide and install all electrical installation and associated accessories and fixtures to complete project as required. Complete installation to follow standard practice in accordance to safety protocols with local authority and adhering to university EHS. Works follows contractor generated layout, approved to include but not limited to wherever deem required;

- I. Supply and installation of light fittings including conduitng and wiring
- II. Supply and installation of lighting override switches
- III. Relocation of existing sensors should exist
- IV. Supply and installation of Lighting sensor
- V. Supply and installation of control module
- VI. Provide containment and wiring for modification and upgrade of lighting control system
- VII. Testing and commissioning of Lighting Control System
- VIII. Supply and installation of 13A power socket -twin, including conduiting and wiring
- IX. Supply and installation of 13A spur outlet, including conduiting and wiring for VAV
- X. Supply and installation of floor box, including conduiting and wiring
- XI. Modification of existing DB as per proposed layout - assuming that existing DB have enough spare and load to accommodate additional load requirement
- XII. Supply and installation of DB, upgraded to accommodate all load requirement in case line item 12 above found to be insufficient
- XIII. Modification of GI trunking for power and lighting
- XIV. Provide PVC containment for wall mounted data points
- XV. Provide PVC containment for floor mounted - floor box, data points
- XVI. Modification of cable tray to accommodate new data cabling
- XVII. Supply and installation of PVC containment for CCTV
- XVIII. Relocation/supply of Digital Clock - network, including conduiting and wiring
- XIX. Carryout the necessary electrical civil related works
- XX. All system, testing, commissioning and integration required
- XXI. Other related works not mentioned above to complete task

I. HVAC WORKS

- I. Supply and installation of new bypass VAV including accessories
- II. Relocation of existing Fan Coil Unit including valve packaged as may deem required
- III. Supply and installation of new Fan Coil Unit as may deem require, including Thermostat, valve package, chilled water and drain pipe with insulation. Works

to include supply of 20A DP switch. All works to include conduiting and wiring -
Provision - contractor to check

- IV. Do modification of existing chilled water pipe with insulation
- V. Supply and installation of thermostat for VAV
- VI. Supply and installation of PI Duct for supply and air duct
- VII. Supply and installation of Plenum box
- VIII. Supply and installation of Supply & Return Slot Diffuser
- IX. Relocation of existing thermostat wherever required
- X. Do modification of condensate drain pipe with insulation
- XI. Do modification of existing BMS as may deem required to accommodate new Bypass VAV and relocation
- XII. Reprogramming, Testing and Commissioning of BMS system
- XIII. Chilled water flow test and performance test for existing AC units
- XIV. Other related HVAC works required not mentioned above if any to complete the task

J. FIRE ALARM WORKS

- I. Removal and relocation of existing Smoke Detector
- II. Supply and installation of Smoke Detector including fire rated cabling
- III. Supply and installation of break glass including fire rated cabling
- IV. Supply and installation of Sounder including fire rated cabling
- V. Disable, Reprogramming, testing and Commissioning of Fire Alarm system
- VI. Other related Fire Alarm works required not mentioned above if any to complete the task

K. FIRE FIGHTING WORKS

- I. Relocation of existing Pendant Sprinkler as per fit
- II. Supply and installation of Pendant Sprinkler including fire rated cabling
- III. Draining and refilling of Fire Fighting system
- IV. Pressure Charges as per standard regulations
- V. Shop drawing preparation and coordination with Civil Defense approval
- VI. Supply and installation, sets of Fire Extinguishers following safety standard
- VII. Other related Fire Fighting works required not mentioned above if any to complete the task

L. EMERGENCY LIGHTING WORKS

- I. Relocation of emergency light
- II. Removal and reinstallation of existing Exit light
- III. Supply and installation of Emergency exit light including conduiting and wiring
- IV. Disable, Reprogramming, testing and Commissioning of Emergency Lighting system (assume that existing CBS Panel have enough capacity to accommodate additional light)
- V. Supply and installation of additional circuit card should required

M. STRUCTURED CABLING WORKS

- I. Supply & install the following structure cabling system outlets complete including pull boxes, conduit cable address and all necessary fixing accessories to complete task given
- II. UTP CAT 6a structured cabling for voice and data, including pulling, termination, face plate to match existing, RJ45 module, termination and labeling
- III. Provide Patch cord 1 meter and Patch cord 3 meter
- IV. 24 port patch panel cat 6a or as deem required, fiber cabling with accessories - for Etisalat connection - 6 core single mode, fiber patch panel, single mode adapters, single mode sc/apc pigtails, sleeves, fiber cable pulling and splicing, fiber fluke testing etc.
- V. 42U Rack, contractor to check should required
- VI. Supply and install WIFI
- VII. Supply and install IT active component where required
- VIII. Other related works not mentioned above to complete task

N. FURNITURE INSTALLATION WORKS

- I. Installation of office furniture from internal resources as per the layout, not limited to;
 - o L-Shape desk including pedestal
 - o Task chair
 - o Visitors chair
 - o Round meeting table
 - o Meeting chair
 - o Conferencing Table
 - o Cabinet

2.0.8 3rd FLOOR OFFICE SPACE

A. DEMOLITION WORKS

- I. Demolition and or clearing of items visible not required to this project, includes clearing of unwanted items in floor, wall and ceiling. Prepare surface to accommodate task as stated under categories
- II. Contractor to provide accounting of related materials for records and handing-over
- III. Removal of existing double leaf door, complete with frames, architraves and ironmongeries, wrap material in bubble plastic, cart away to specified store. Scope to include making good of all affected areas ready to receive frameless glass door
- IV. Demolition of non-structural elements including all associated works
- V. Construction debris removal from the floor and send it to municipality dump yard as per regulations

B. CIVIL WORKS(PARTITION)

- I. Supply and installation of double-glazed partition, 6+88+6 clear glass, tempered
- II. DITTO, windows in the gypsum partitions, between two offices

- III. Fabricate, supply and installation of powder coated aluminum framed single leaf glass-swing door, tempered complete with ironmongery. Standard height to match with width as indicated in the layout
- IV. Fabricate, supply and installation of powder coated aluminum frameless double leaf glass-swing door, tempered complete with ironmongery. Standard height to match with width as indicated in the layout
- V. Supply and installation of sandblasted film on glass partitions and doors, design to match existing
- VI. Supply and installation of 100mm thick gypsum board partitions, consisting of 72mm GI tracks, 70mm GI studs, Rockwool insulation - density of 35kg/m³ and single layer of 12.5mm thick gypsum board on each side as shown in the layout but has not been constructed yet. It is to vendor discretion to check existing against what's made available in the site. Works includes, taping, sanding, jointing etc. ready to receive final finish
- VII. All door KEYS to be accessed of Master Keying system
- VIII. Design, supply and installation of wall mounted signage in Arabic and English - Departmental name to be given at a later stage. Material and finishes to match existing
- IX. Design, supply and installation of wall mounted signage, Faculty users name and title plus room # in all rooms, Arabic and English. Material and finishes to match existing
- X. Contractor to check, repair all existing doors, frames, architraves and ironmongery making sure that all are well and good
- XI. Supply and installation of perforated roller drapes to match existing in all windows. Contractor to ensure that curtain cove, space to accommodate and hang mechanical rollers are properly in place

C. FLOOR FINISH WORKS

- I. Repair and make good all areas affected by removal and or setting up partition floor profile and embedding floor boxes and necessary trunking
- II. Apply appropriate thickness concrete screed including leveling compound to prepare entire space to receive vinyl
- III. Supply and installation of 3mm thick vinyl tiles: - ASTM F1700, Class III solid vinyl tiles, resilient flooring with 1.0 wear layer thickness, sound reduction of 17dB min. slip resistance, chemical resistance, flammability/smoke emission - ASTM E648, class 1, Tensile strength upto 4000lbs/sq.inch, static load, environmentally friendly, indoor Air quality certified at least 10 years of manufacturers defect warranty. Offices corridors, Reception and Conference room
- IV. Supply and installation of 8mm thick carpet tiles: - solution dyed nylon type 6.6, glas bac backing (no bitumen) tufted loof, static protection, anti stain protection, environmentally friendly, indoor air quality certified with flammability rating, lifetime antimicrobial protection, at least 10 years manufacturing
- V. Supply and installation 40x40 and or 60x60 ceramic tiles
- VI. Termination of joints between existing floor finish and new by means of threshold, floor grip, strips wherever needed and as appropriate

D. WALL FINISHING WORKS

- I. Prepare and apply Jotun Fenomastic silk paint finish to new partition and existing walls and partitions. Color to match or as required. Rooms: A02026a, A02087 and A02020
- II. Supply and installation of 100mm high SS skirting to match existing, covering all walls and partitions
- III. Supply and installation 40x40 ceramic tiles appropriately
- IV. Apply anti-bacterial, anti-fungus paint at walls above false ceiling

E. JOINERY WORKS

- I. Supply and installation of Kitchen Counter, Corian top finish, double bowl SS sink with H/C mixer, complete with under counter standard cabinetry and overhang cabinet. Dimension as shown in the layout
- II. Design, supply and installation of Reception counter, dimension base in the footprint and shown in the layout. Laminate finish with box/box/file mobile pedestal. Concept to match existing in 3rd floor offices block in building A

F. CEILING FINISHING WORKS

- I. Supply and installation of plain gypsum ceiling, 12.5mm thick gypsum board on GI framing to suit proposed layout
- II. Supply and installation of aluminum tiles to match, complete with suspension system to suit proposed layout
- III. Supply and installation of vertical bulkhead, 12.5mm thick gypsum board, single layer on GI frame suspension
- IV. Prepare and apply Jotun Fenomastic silk paint finish to new gypsum ceiling and bulkhead. Color to match or as required

G. LIGHTING WORKS

- I. Supply of linear light, length 1200mm to match existing. Contractor to design atmospheric light following standard lighting lux appropriate to room activities. Vendor to design spaces as appropriate
- II. Supply and installation of downlighter with powered factor ballast wherever indicated - above reception counter

H. ELECTRICAL WORKS

Provide and install all electrical installation and associated accessories and fixtures to complete project as required. Complete installation to follow standard practice in accordance to safety protocols with local authority and adhering to university EHS. Works follows contractor generated layout, approved to include but not limited to wherever deem required;

- I. Supply and installation of light fittings including conduitng and wiring
- II. Supply and installation of lighting override switches
- III. Relocation of existing sensors should exist
- IV. Supply and installation of Lighting sensor
- V. Supply and installation of control module
- VI. Provide containment and wiring for modification and upgrade of lighting control system

- VII. Testing and commissioning of Lighting Control System
- VIII. Supply and installation of 13A power socket -twin, including conduiting and wiring
- IX. Supply and installation of 13A spur outlet, including conduiting and wiring for VAV
- X. Supply and installation of floor box, including conduiting and wiring
- XI. Modification of existing DB as per proposed layout - assuming that existing DB have enough spare and load to accommodate additional load requirement
- XII. Supply and installation of DB, upgraded to accommodate all load requirement in case line item 12 above found to be insufficient
- XIII. Modification of GI trunking for power and lighting
- XIV. Provide PVC containment for wall mounted data points
- XV. Provide PVC containment for floor mounted - floor box, data points
- XVI. Modification of cable tray to accommodate new data cabling
- XVII. Supply and installation of PVC containment for CCTV
- XVIII. Relocation/supply of Digital Clock - network, including conduiting and wiring
- XIX. Carryout the necessary electrical civil related works
- XX. All system, testing, commissioning and integration required
- XXI. Other related works not mentioned above to complete task

I. HVAC WORKS

- I. Supply and installation of new bypass VAV including accessories
- II. Relocation of existing Fan Coil Unit including valve packaged as may deem required
- III. Supply and installation of new Fan Coil Unit as may deem require, including Thermostat, valve package, chilled water and drain pipe with insulation. Works to include supply of 20A DP switch. All works to include conduiting and wiring - Provision - contractor to check
- IV. Do modification of existing chilled water pipe with insulation
- V. Supply and installation of thermostat for VAV
- VI. Supply and installation of PI Duct for supply and air duct
- VII. Supply and installation of Plenum box
- VIII. Supply and installation of Supply & Return Slot Diffuser
- IX. Relocation of existing thermostat wherever required
- X. Do modification of condensate drain pipe with insulation
- XI. Do modification of existing BMS as may deem required to accommodate new Bypass VAV and relocation
- XII. Reprogramming, Testing and Commissioning of BMS system
- XIII. Chilled water flow test and performance test for existing AC units
- XIV. Other related HVAC works required not mentioned above if any to complete the task

J. FIRE ALARM WORKS

- I. Removal and relocation of existing Smoke Detector
- II. Supply and installation of Smoke Detector including fire rated cabling
- III. Supply and installation of break glass including fire rated cabling
- IV. Supply and installation of Sounder including fire rated cabling

- V. Disable, Reprogramming, testing and Commissioning of Fire Alarm system
- VI. Other related Fire Alarm works required not mentioned above if any to complete the task

K. FIRE FIGHTING WORKS

- I. Relocation of existing Pendant Sprinkler as per fit
- II. Supply and installation of Pendant Sprinkler including fire rated cabling
- III. Draining and refilling of Fire Fighting system
- IV. Pressure Charges as per standard regulations
- V. Shop drawing preparation and coordination with Civil Defense approval
- VI. Supply and installation, sets of Fire Extinguishers following safety standard
- VII. Other related Fire Fighting works required not mentioned above if any to complete the task

L. EMERGENCY LIGHTING WORKS

- I. Relocation of emergency light
- II. Removal and reinstallation of existing Exit light
- III. Supply and installation of Emergency exit light including conduiting and wiring
- IV. Disable, Reprogramming, testing and Commissioning of Emergency Lighting system (assume that existing CBS Panel have enough capacity to accommodate additional light)
- V. Supply and installation of additional circuit card should required

M. STRUCTURED CABLING WORKS

- I. Supply & install the following structure cabling system outlets complete including pull boxes, conduit cable address and all necessary fixing accessories to complete task given
- II. UTP CAT 6a structured cabling for voice and data, including pulling, termination, face plate to match existing, RJ45 module, termination and labeling
- III. Provide Patch cord 1 meter and Patch cord 3 meter
- IV. 24 port patch panel cat 6a or as deem required, fiber cabling with accessories - for Etisalat connection - 6 core single mode, fiber patch panel, single mode adapters, single mode sc/apc pigtails, sleeves, fiber cable pulling and splicing, fiber fluke testing etc.
- V. 42U Rack, contractor to check should required
- VI. Supply and install WIFI
- VII. Supply and install IT active components where required
- VIII. Other related works not mentioned above to complete task

N. FURNITURE INSTALLATION WORKS

- I. Installation of office furniture from internal resources as per the layout, not limited to;
 - o L-Shape desk including pedestal
 - o Task chair
 - o Visitors chair
 - o Round meeting table
 - o Meeting chair
 - o Conferencing Table

- Cabinet

2.0.9 MULTI PURPOSE ROOM (Admission)

A. DEMOLITION WORKS

- I. Removal, clearing of unwanted debris, ceiling tiles & bulkhead and other related materials on floor, cat away to municipality dump site.
- II. Prepare entire space for required build out

B. CIVIL WORKS(PARTITION)

- I. Supply and application of concrete screed to the level required matching existing corridor as appropriate
- II. Supply and application of leveling compound to accommodate new floor finish
- III. All existing door keys to be check, ensuring that keys - cylinder are in good operational condition. Scope to include supply and installation of new set - master key system should existing found to be unoperational and or doors are without lockset.
- IV. Fabricate, supply and installation of laminate door - single leaf, with double glazed 6mm thick, tempered clear glass vision panel, complete with ironmongery.
- V. Design, supply and installation of wall mounted signage to read as "Student Affairs Multi-Purpose Room" in Arabic and English. Material and finishes to match existing
- VI. Design, supply and installation of wall mounted signage, Faculty user's / room names with title plus room # in all rooms, Arabic and English. Material and finishes to match existing

C. FLOOR FINISH WORKS

- I. Supply and installation of Class III solid vinyl tiles, 3mm thick, chemical and slip resistance. Environmentally friendly and indoor Air Quality Certified. Installation, VOC free adhesive and levelling compound, LEED and Green certified
- II. Termination of joints, ramp, between existing floor finish and new by means of threshold, floor grip, strips wherever needed

D. WALL FINISHING WORKS

- I. Prepare and apply Jotun Fenomastic silk paint finish to the entire wall. Color to match or as required
- II. Supply and application of 1500mm height writable wall space - IDEA paint, end-to-end on short side of wall, both end
- III. Supply and installation of 100mm high SS skirting to match existing, covering all walls and partitions
- IV. Apply anti-bacterial, anti-fungus paint at walls above false ceiling

E. CEILING FINISHING WORKS

- I. Supply and installation of plain gypsum ceiling, 12.5mm thick gypsum board on GI framing to suit proposed layout. Conceptual design to match existing

- II. Supply and installation of aluminum tiles to match, complete with suspension system to suit proposed layout
- III. Supply and installation of vertical bulkhead, 12.5mm thick gypsum board, single layer on GI frame suspension
- IV. Prepare and apply Jotun Fenomastic silk paint finish to new gypsum ceiling and bulkhead. Color to match or as required

F. LIGHTING WORKS

- I. Supply of linear light, length 1200mm to match existing. Contractor to design atmospheric light following standard lighting lux appropriate to room activities, with sensor. Lighting to be done in 2 zones with On-Off switch.

G. ELECTRICAL WORKS

Provide and install all electrical installation and associated accessories and fixtures to complete project as required. Complete installation to follow standard practice in accordance to safety protocols with local authority and adhering to university EHS. Works follows contractor generated layout, approved to include but not limited to wherever deem required;

- I. Installation of light fittings including conduitng and wiring
- II. Supply and installation of lighting override switches
- III. Relocation of existing sensors should exist
- IV. Supply and installation of Lighting sensor
- V. Supply and installation of control module
- VI. Provide the containment and wiring for modification and upgrade of lighting control system should require
- VII. Testing and commissioning of Lighting Control System
- VIII. Supply and installation of 13A power socket -twin, including conduiting and wiring
- IX. Supply and installation of 13A spur outlet, including conduiting and wiring for VAV
- X. Supply and installation of floor box, including conduiting and wiring
- XI. Modification of existing DB as to fit - assuming that existing DB have enough spare and load to accommodate additional load requirement
- XII. Supply and installation of DB, upgraded to accommodate all load requirement in case line item 12 above found to be insufficient
- XIII. Modification of GI trunking for power and lighting
- XIV. PVC containment for wall mounted data points
- XV. PVC containment for floor mounted - floor box, data points
- XVI. Modification of cable tray to accommodate new data cabling
- XVII. Supply and installation of CCTV including cabling and conduiting. Works to include system configuration, all in accordance with and approval of local authority
- XVIII. Supply and installation of Digital Clock - network, including conduiting and wiring
- XIX. Other electrical related works not mentioned above if any to complete task

H. HVAC WORKS

- I. Modification, supply and installation of A/C supply and return as appropriate. Scope to include Temperature control. Type, concept and operational to match existing.
- II. Supply and installation of new bypass VAV including accessories
- III. Supply and installation of new Fan Coil Unit as may deem required, including Thermostat, valve package, chilled water and drain pipe with insulation. Works to include supply of 20A DP switch. All works to include conduiting and wiring. Contractor to his discretion, to have 3rd party survey and assessment in able to determine sufficiency of supply
- IV. Do Modification of existing chilled water pipe with insulation
- V. Supply and installation of thermostat for VAV
- VI. Supply and installation of PI Duct for supply and air duct
- VII. Supply and installation of Plenum box
- VIII. Supply and installation of Supply & Return Slot Diffuser
- IX. Provide & Modification of condensate drain pipe with insulation
- X. Provide & Modification of existing BMS as may deem required to accommodate new Bypass VAV and relocation
- XI. Reprogramming, Testing and Commissioning of BMS system
- XII. Chilled water flow test and performance test for existing AC units
- XIII. Other related HVAC works required not mentioned above if any to complete task

I. FIRE ALARM WORKS

- I. Supply and installation of Smoke Detector including fire rated cabling following international and local standard and regulation protocols
- II. Supply and installation of break glass including fire rated cabling
- III. Supply and installation of Sounder including fire rated cabling
- IV. Disable, Reprogramming, testing and Commissioning of Fire Alarm system
- V. Other related Fire Alarm works required not mentioned above if any to complete task

J. FIRE FIGHTING WORKS

- I. Relocation of existing Pendant Sprinkler as deemed fit
- II. Supply and installation of Pendant Sprinkler including fire rated cabling following international and local standard and regulation protocols
- III. Draining and refilling of Fire Fighting system
- IV. Pressure Charges
- V. Shop drawing preparation and coordination with Civil Defense approval
- VI. Supply and installation, sets of Fire Extinguishers following safety standard
- VII. Other related Fire Fighting works required not mentioned above if any to complete task

K. EMERGENCY LIGHTING WORKS

- I. Removal and reinstallation of existing Exit light
- II. Supply and installation of Emergency exit light including conduiting and wiring following international standard regulation and protocols

- III. Disable, Reprogramming, testing and Commissioning of Emergency Lighting system (assume that existing CBS Panel have enough capacity to accommodate additional light)
- IV. Supply and installation of additional circuit card should require
- V. Other related Emergency lighting works required not mentioned above if any to complete task

L. STRUCTURED CABLING WORKS

- I. Supply & install the following structure cabling system outlets complete including pull boxes, conduit cable address and all necessary fixing accessories to complete task given
- II. UTP CAT 6a structured cabling for voice and data, including pulling, termination, face plate to match existing, RJ45 module, termination and labeling
- III. Provide Patch cord 1 meter and Patch cord 3 meter
- IV. 24 port patch panel cat 6a or as deem required, fiber cabling with accessories - for Etisalat connection - 6 core single mode, fiber patch panel, single mode adapters, single mode sc/apc pigtails, sleeves, fiber cable pulling and splicing, fiber fluke testing etc.
- V. 42U Rack, contractor to check should required
- VI. Supply and install WIFI
- VII. Supply and install IT Active Components
- VIII. Other related works not mentioned above to complete task

M. AUDIO/ VIDEO WORKS

- I. Complete work is to provide comprehensive solution as fully describe in the scope of works. Contractor/vendor is to submit design, detailed BOQ, specific catalogs of proposed items- please refer to AV SOW document

2.0.10 LAB SPACES

A. DEMOLITION WORKS

- I. Removal of unwanted partition walls; concrete/gypsum, re-aligning services that maybe within should needed, wrap material in good condition, making good affected areas, cart to specified store, municipality dump site
- II. Removal of countertop, and carpet tiles in room 1st flr 104130. Prepare floor and wall surface to accommodate epoxy paint finish
- III. 200mm thick blockwall - 2nd flr Tissue Culture Lab
- IV. 200mm thick blockwall - 3rd flr PCR room
- V. Removal of unwanted ceiling materials; tiles, bulkhead, re-aligning MEP services there maybe to suit as required
- VI. Removal of debris, segregate and securely wrap usable items should there be, cart away trash to municipality dump site
- VII. Safely removal of any furniture, securely wrap, cart away to specified store
- VIII. Contractor to provide accounting of related materials for records and handing over

B. CIVIL WORKS(PARTITION)

- V. Switch places - 1 x single door and 1 x double door in room 101008, relocate 1 x double door in room 101059, complete with frames, sub-frames, architrave and ironmongeries. Patch gap with blockwork to match, make good of all surface affected
- VI. Supply and installation of blockworks, where specified. Internal and perimeter thickness to match existing
 - o 200mm thick up to underside of slab - 1st flr 101007
 - o 100mm thick to 4M height FFL - 2nd flr B02005, Tissue Culture, 3rd flr PCR room
- VII. Supply and installation of 100mm thick gypsum board partitions, consisting of 72mm GI tracks, 70mm GI studs, Rockwool insulation - density of 35kg/m³ and single layer of 12.5mm thick gypsum board on each side. Works includes, taping, sanding, jointing etc. ready to receive final finish
 - o 1st flr 101058 and 101059 plus gap at curtain wall
 - o Gap at curtain wall - 2nd flr
 - o Gap at curtain wall - 3rd flr
 - o Gap at curtain wall - 4th flr
- VIII. Supply and installation of double glazed partition, 6+8+6 clear glass, tempered
 - o 1st flr 101058 and 101059
- IX. Supply and install as DITTO, windows in the gypsum partitions
 - o 1st flr 101058 and 101059
- X. Fabricate, supply and installation of powder coated aluminum framed single leaf glass-swing door, tempered complete with ironmongery. Standard height to match with width as indicated in the layout
 - o 1st flr 101058 and 101059
- XI. Fabricate, supply and installation of powder coated aluminum framed double leaf glass-swing door, tempered complete with ironmongery. Standard height to match with width as indicated in the layout
- XII. Supply and Installation of ceiling hang curtain closure, SS aluminum railing, PVC curtain, 3 bays as shown in room A02007
- XIII. Fabricate, supply and installation of fire rated laminate door with vision panel, single leaf, complete with ironmongery to match existing. Standard height to match with width as indicated in the layout
 - o 2nd flr - Tissue Culture lab
 - o 3rd flr - PCR room
- XIV. Fabricate, supply and installation of fire rated laminate door with vision panel, double leaf, complete with ironmongery to match existing. Standard height to match with width as indicated in the layout
 - o 2nd flr - B02005
- XV. Supply and installation of sandblasted film on glass partitions and doors
 - o 1st flr 101058 and 101059
- XVI. Apply, pour appropriate thickness concrete

C. FLOOR FINISH WORKS

- I. Supply and installation of Ceramic tiles in Kitchen to match existing - 4th flr
- II. Apply appropriate thickness of leveling compound
- III. Supply and installation of Class III solid vinyl tiles, 3mm thick, chemical and slip resistance. Environmentally friendly and indoor Air Quality Certified. Installation, VOC free adhesive and levelling compound, LEED and Green certified
- IV. Prepare and apply Epoxy paint finish, Cold & Dry Store room, Freezer, Waste and Autoclave room
- V. Provide the termination of joints between existing floor finish and new by means of threshold, floor grip, strips wherever needed and as appropriate

D. WALL FINISHING WORKS

- I. Supply and installation of Ceramic tiles in Kitchen to match existing - 4th flr
- II. Apply appropriate Concrete/mortar plastering
- III. Prepare and apply Jotun Fenomastic silk paint finish to new partition and existing walls and partitions. Color to match or as require
- IV. Prepare and apply Epoxy paint finish, Cold & Dry Store room, Freezer and Autoclave room
- V. Supply and installation of manually operated perforated Roller Blinds, micro screen, 34%G + 66%PVC
- VI. Supply and installation of 100mm high PVC skirting to match existing, covering all walls and partitions
- VII. Apply anti-bacterial, anti-fungus paint at walls above false ceiling

E. JOINERY WORKS

- I. Supply and installation of Kitchen Counter, Corian top finish, double bowl SS sink with H/C mixer, complete with under counter standard cabinetry and overhang cabinet. Dimension as shown in the layout - 4th flr
- II. Contractor to check, repair all existing doors, frames, architraves and ironmongery making sure that all are well and good and operational

F. CEILING FINISHING WORKS

- I. Supply and installation of plain gypsum ceiling, 12.5mm thick gypsum board on GI framing to suit proposed layout
- II. Supply and installation of aluminum tiles to match, complete with suspension system to suit proposed layout-
- III. Supply and installation of vertical bulkhead, 12.5mm thick gypsum board, single layer on GI frame suspension
- IV. Prepare and apply Jotun Fenomastic silk paint finish to new gypsum ceiling and bulkhead. Color to match or as required

G. LIGHTING WORKS

- I. Supply of linear light, length 1200mm to match existing. Contractor to design atmospheric light following standard lighting lux appropriate to specific room activities

- II. Supply and installation of downlighter with powered factor ballast as may suit following existing design concept in the building

H. ELECTRICAL WORKS

All lab spaces to be fitted with dedicated DB. No. of circuits in a DB should be calculated as per international and local regulation standard based on the indicative layout. All Services required indicated in service riser and spine on lab benches - lab spaces parallel/adjacent to the carpark, contractor only to supply circuits with capacity qty and capacity based on no. of points indicated in the layout in conjunction with decryption written in the scope of work. Power/data/medical gases on walls in these labs as indicated and those rooms and labs spaces located not parallel to car park - contractor to fully supply terminate, test and commission. Supply and installation of light fittings including conduitng and wiring.

- I. Installation of light fittings including conduitng and wiring based on lighting above
- II. Supply and installation of lighting override switches
- III. Relocation of existing sensors should exist
- IV. Supply and installation of Lighting sensor
- V. Supply and installation of control module
- VI. Containment and wiring for modification and upgrade of lighting control system
- VII. Supply and installation of 13A power socket -twin, including conduitng and wiring
- VIII. Supply and installation of 13A spur outlet, including conduitng and wiring for VAV
- IX. Modification of existing DB as per proposed layout - assuming that existing DB have enough spare and load to accommodate additional load requirement
- X. Supply and installation of DB, upgraded to accommodate all load requirement in case line item 12 above found to be insufficient. All lab spaces to be fitted with dedicated DB
- XI. Modification of GI trunking for power and lighting
- XII. PVC containment for wall mounted data points
- XIII. Modification of cable tray to accommodate new data cabling
- XIV. Supply and installation of CCTV, quantity and coverage based on local regulation compliance
- XV. Supply and installation of 20A DP switch with flex outlet for water heater wherever needed, including conduitng and wiring
- XVI. Supply and installation of Digital Clock - network, including conduitng and wiring
- XVII. Integration, Programming, Testing and commissioning for above tasks
- XVIII. MEP related works not mentioned above to complete task

I. HVAC WORKS

All rooms, labs spaces has already Airconditioning units installed. However, Contractor to check, verify existence of; FCUs, AHU's within and or feeding spaces that required cooling. Assess operational condition should exists and shall determine additional requirements as calculation may suggest to comply with standard room temperature required to complete task

- I. Supply and installation of new bypass VAV including accessories
- II. Relocation of existing Fan coil Unit including valve packaged as may deem required to suit with ceiling and bulkhead
- III. Supply and installation of new Fan coil Unit as may deem require, including Thermostat, valve package, chilled water and drain pipe with insulation. Works to include supply of 20A DP switch. All works to include conduiting and wiring
- IV. Modification of existing chilled water pipe with insulation
- V. Supply and installation of thermostat for VAV
- VI. Supply and installation of PI Duct for supply and air duct
- VII. Supply and installation of Plenum box
- VIII. Insulate existing ducting that are without insulation
- IX. Supply and installation of Supply & Return Slot Diffuser
- X. Relocation of existing thermostat wherever required
- XI. Modification of condensate drain pipe with insulation
- XII. Modification of existing BMS as may deem required to accommodate new Bypass VAV and relocation
- XIII. Chilled water flow test and performance test for existing AC units
- XIV. Provide extraction duct in SS tubing on location where Fume Cupboard and Autoclave are located. Velocity is as per international standard
- XV. Integration, Reprogramming, Testing and Commissioning of BMS system
- XVI. Other related HVAC works required not mentioned above if any to complete task

J. FIRE ALARM WORKS

All rooms, labs spaces has existing smoke detectors, contractor to verify, check operational condition, assess compliance in terms of quantity and placements. Re-align, add wherever needed ensuring compliant with standard regulation, local and international, add should deem require. Quantity may deem void, contractor to mark line item NA if exists and or incorporate correct quantity on the side

- I. Removal and relocation of existing Smoke Detector
- II. Supply and installation of Smoke Detector including fire rated cabling.
- III. Supply and installation of break glass including fire rated cabling
- IV. Supply and installation of Sounder including fire rated cabling
- V. Disable, Reprogramming, testing and Commissioning of Fire Alarm system
- VI. Other related Fire Alarm works required not mentioned above if any to complete task

K. FIRE FIGHTING WORKS

All rooms, labs spaces has existing sprinkler heads, contractor to verify, check operational condition, assess compliance in terms of quantity and placements. Re-align, add wherever needed ensuring compliant with standard regulation, local and international, add should deem require. Quantity may deem void, contractor to mark line item NA if exists and or incorporate correct quantity on the side

- I. Relocation of existing Pendant Sprinkler as per fit
- II. Supply and installation of Pendant Sprinkler including fire rated cabling
- III. Draining and refilling of Fire Fighting system
- IV. Pressure Charges as per standard regulations

- V. Shop drawing preparation and coordination with Civil Defense approval
- VI. Supply and installation, sets of Fire Extinguishers following safety standard
- VII. Other related Fire Fighting works required not mentioned above if any to complete the task

L. EMERGENCY LIGHTING WORKS

- I. Relocation of emergency light
- II. Removal and reinstallation of existing Exit light
- III. Supply and installation of Emergency exit light including conduiting and wiring
- IV. Disable, Reprogramming, testing and Commissioning of Emergency Lighting system (assume that existing CBS Panel have enough capacity to accommodate additional light)
- V. Supply and installation of additional circuit card should required

M. PLUMBING WORKS

- I. Supply and installation of water supply
- II. Supply and installation of gate valve
- III. Supply and installation of water hammer arrester
- IV. Supply and installation of required drainage
- V. Supply and installation of 50L water heater
- VI. Supply and installation of floor trap
- VII. Other related works not mentioned above to complete task

N. STRUCTURED CABLING WORKS

Other than those going to lab benches service riser and spine specifically on labs spaces parallel/adjacent to the car park, all voice and data as indicated in the layout - contractor to supply, install, terminate, test and commission. Contractor as part of the scope, to count total quantity required, those going to the lab benches (Service riser and spine) which quantity not mentioned herein, allocate appropriately and install all network related items ready to accommodate cabling by others

- I. Supply & install the following structure cabling system outlets complete including pull boxes, conduit cable address and all necessary fixing accessories to complete task given
- II. UTP CAT 6a structured cabling for voice and data, including pulling, termination, face plate to match existing, RJ45 module, termination and labeling
- III. Provide Patch cord 1 meter and Patch cord 3 meter
- IV. 24 port patch panel cat 6a or as deem required, fiber cabling with accessories - for Etisalat connection - 6 core single mode, fiber patch panel, single mode adapters, single mode sc/apc pigtails, sleeves, fiber cable pulling and splicing, fiber fluke testing etc.
- V. 42U Rack, contractor to check should required
- VI. Supply and install WIFI
- VII. Supply install IT Active Components
- VIII. Other related works not mentioned above to complete task

3.0 GENERAL CONSTRUCTION NOTE

3.0.1 LABS & OFFICES

A. HVAC works (ASRAE, 10 ACU/hr)

1. Heat Load (HAP) Calculation shall be done to arrive at the exact cooling requirement and implement accordingly.
2. For the Labs as per the as built drawings 100% fresh air is being fed from the centralized AHUs and exhaust from these rooms is going back to the FAHU heat recovery section.
3. There are chilled water-cooling coils provided in each room. The fresh air from the FAHU is being fed into the cooling coil to give cooling as desired.
At present, there is no control valve. The need to install new control valves in order to achieve the desired temperature.
Contractor to verify that the capacity of the cooling coil is enough for lab cooling. In case there is a need to increase the cooling, no extra chilled water provision is available.
Otherwise, DX Units have to be installed. Consideration is to be carefully taken following ASRAE standard
4. Consider new VAVs on Fresh Air supply and General exhaust to achieve negative or positive pressure within the labs base upon the requirement as design may dictate
5. For Fume Hoods extract, consider new Fume Hood extract fans (1 Working + 1 Standby) with auto changeover control Panel. These fans shall be installed at the roof top where all the Fume Hood ducts are already routed to.
The Fume Hood extract GRP riser ducts are existing in the shafts. Connect the Fume Hood extract to the existing GRP riser duct with new SS Fume extract ducts.
6. Contractor to consider VAV for Fume Hood and integrate into a pressure control system.
7. Allow BMS for the VAVs, the cooling coils, the Fume Hood. The new BMS shall be integrated with the existing BMS(AZBIL System).
8. Contractor to allow Lab controllers
9. Allow for new FAHUs and chillers to meet required cooling capacities, size as calculation may dictates.
10. Allow for new Bypass type VAVs with thermostats for the temperature controls for all new individual Lab and partitioned spaces. And also, VAVs for airflow control for pressure control inside these lab spaces.
11. Lab offices, Autoclaves, Freezer rooms etc. which are part of Lab as per the tender documents shall not require any VAVs for pressure control.
Standard Volume control dampers to be considered for such spaces which do not require any pressure control.
However individual spaces which require Bypass type VAVs with Thermostats to be considered for individual space temperature control.

B. Plumbing works

1. The water supply provisions are existing for the labs. Consider hot and cold water supply to the Lab sinks and equipment and final connections.
2. Supply of sanitary fixture and installation as required
3. Allow for water heater

4. Allow RO connection from existing Filtration system in Lab sinks as indicated on Labs.
5. For drainage, waste water from the lab sinks shall be drained into the floor traps and shall be drained out through UPVC drainage pipes into the existing manholes.
6. Floor clean outs shall be provided for routine cleaning of the drainage system.

C. Electrical works

The main cable is already installed at the site to the various labs and offices for feeding final DB's, consider all required power for each labs and offices as shown in the layout and indicated in the BOQ. Scope will be design, supply & installation of Final DBs, lighting points, lighting switches, power outlets for VAVs, Water heater, Fume hood extract fans etc as mentioned but not limited to

Design, supply, containment, wiring/cabling & installation of electrical works as follows:

1. New/modification of final DBs with RCBO breakers for each labs and office areas as per the load requirements.
2. To re-check the SMDB from where the cables to the various facilities are being fed.
3. Lighting points.
4. Supply of lights
5. Switches for lighting points as per the requirements.
6. 13A twin switched sockets on wall as specified in the proposed drawings.
7. 20A DP switch with flex outlet for Water heaters.
8. 13A Spur outlets for VAV's.
9. 40A Isolators for Fume hood extract fans on the roof top.
10. UPS system for feeding the sockets on the lab benches as specified in the proposed drawings. Considered one UPS system for each floors.
11. PVC containment works for Low current works such as Data, CCTV & Digital clock systems.
12. All services containment required for benches (power, data, UPS) as indicated in the Lab Furniture Layout to be calculated in the provision of DBs in all labs
13. Emergency power button to all Lab spaces
14. Isolator where necessary as standard regulation may suggest
15. Provide the emergency push button switches as required quantity to the labs, in order to switch off the power during the emergency as a safety measure for quickly disconnecting electrical power to a particular Final DBs of equipment
16. All the Final DBs should require RCBO breakers (Residual current circuit breakers with over current protections) to the individual circuits as per the load requirements
17. All the 3 phase connection needs to be fixed a ELR protection as applicable
18. CCTV installation should be inline with MCC approval and an additional one year maintenance should be considered in the offer, after completion of one year DLP

D. Fire alarm works

Design, supply, conduiting, cabling & installation of Fire alarm works as per the requirements as follows:

1. Smoke detectors including fire rated cabling.

2. Break glass/Manual call point including fire rated cabling.
3. Fire alarm sounder including fire rated cabling.
4. Relocation of existing Fire alarm devices.
5. Disable, Reprogramming, Testing & Commissioning of Fire alarm system with the existing FACP by assuming that the panel have enough capacity to accommodate additional devices.
6. ADCD Shop drawing design, submission, inspection and final approval for Fire alarm will be done by us.

E. Emergency lighting works

Design, supply, conduiting, cabling & installation of Emergency lighting works as per the requirements as follows:

1. Emergency/Exit lights including fire rated cabling.
2. Relocation of existing Emergency/Exit lights.
3. Disable, Reprogramming, Testing & Commissioning of Emergency lighting system with the existing Central battery system by assuming that the panel have enough capacity to accommodate additional lights.
4. ADCD Shop drawing design, submission, inspection and final approval for Emergency lighting will be done by us.

F. Fire Fighting works

1. The Firefighting network for the lab and office areas is existing. We will add new pendant sprinkler heads as per the new ceiling layout.
2. Pressure test shall be done for the entire Firefighting piping shall be carried out by us.
3. ADCD approval shall be required for the modification works. We will be responsible for shop drawing submission, inspection and final approval for the Firefighting drawings.

3.0.2 VIVARIUM

A. HVAC works

1. Heat Load (HAP) Calculation shall be required to arrive at the exact cooling requirement and implement accordingly.
2. Per the ASHRAE and Canadian Council on Animal Care CCAC Guidelines (DOC-2 in RFI Clarification-01), consider 100% fresh air for the animal holding areas which is being fed from existing FAHUs. The exhaust is going back to the FAHUs heat recovery section.
3. The fresh air and exhaust ducts from the roof to the vivarium are shown to be existing in the as built drawings. The two FAHUs feeding these ducts are also shown to be existing.
4. Two FAHUs considered to be existing complete with chilled water provision as suggested by the as built drawings. – Contractor to verify

5. Cooling as appeared in the As Built drawings, chilled water provisions are not enough to cater the heat load. Contractor to consider one new chiller (100 TR Cooling capacity), new chilled water pumps and new chilled water FCUs.
6. VAVs inside the fresh air supply and exhaust ducts, contractor to consider in order to control the special pressure requirement of all area.
7. Bypass type VAVs to be considered to control the individual space temperature control wherever required by the design.
8. As per the CCAG guidelines, the animal cages need to be well ventilated to prevent accumulation of allergens inside the cage and reduce the possibility those allergens getting into the room and affecting the personnel. Contractor to consider dedicated exhaust system for the cages. Ducted system with cage extract fans shall maintain a negative pressure inside the cage, eliminating the possibility of allergens to get into holding area. Final design to be coordinated with contractor appointed third-party Animal House Solution provider
9. As per the CCAG guidelines, the air exhaust system should be designed with easily changeable filters (30% pleated) on every exhaust grille within each room to remove all gross particulate matter, such as animal dander, bedding dust, etc. We have considered filters on the exhaust duct grill of each room to avoid accumulation of particulate matter inside the ducts.
10. As per the CCAG guidelines, the animal holding areas must be maintained at 40-60 % relative humidity. Contractor to consider duct heaters and dehumidifiers for each animal holding areas for precise humidity control.
11. New FCUs to be consider maintaining the temperature of individual spaces.
12. Bypass type VAVs to be consider for temperature control of the spaces as per the design.
13. HEPA filters to be consider for the surgery room as required by the design.
14. For Toilets, Contractor to consider toilet extract fan which will be placed on the roof top and toilet extract duct shall run in the riser and connected to the toilet extract at the roof.
15. MS ducting shall be provided for the kitchen hood extract.
16. Non-ferrous ducting shall be required in the MRI room.
17. New chilled water piping is needed for the new FCU and Chiller.
18. New chilled water pumps are considered for new Chiller.
19. The entire HVAC system for the Vivarium shall be integrated and controlled by BMS(AZBIL System).

B. Plumbing works

1. We have considered that there is existing provisions for water supply.
2. Our scope of works shall be limited to providing hot and cold-water supply to all the sanitary fixtures. Providing water points to the animal holding areas (provision for animal cages), Bib taps for cage washing area etc.
3. Water heaters for hot water supply are considered.
4. We have considered RO machine for water purification for the Vivarium.
5. Water supply to the Toilet area are considered.
6. We shall not supply any of the sanitary fixture. Our scope of works shall be limited to fixing of the sanitary wares like wash basin, Water closet sinks etc.

7. For drainage, we have considered that the lime stone chambers are existing, our scope of work shall be limited to terminating the vivarium drainage to the existing lime stone chamber from where the drainage shall pass on to the manholes.
8. The general drainage from toilets and wash basins shall go to the existing manholes directly.

C. Electrical works

Design, supply, containment, wiring/cabbling & installation of electrical works as follows:

1. New/modification of final DBs with RCBO breakers as per the load requirements.
2. SMDB's as per the load requirements, contractor to verify that the required load will be available at the premise. If, however not, contractor to supply and install based on appropriate calculation
3. 4Cx CU/XLPE/SWA/PVC + 1Cx ECC Y/G cables as per the requirements as mentioned in the BOQ.
4. Lighting points. Supply of lights are excluded.
5. 13A Single switch sockets as specified in the proposed drawings.
6. 13A twin switch sockets as specified in the proposed drawings.
7. 20A DP switch with flex outlet for VAVS & FCUs.
8. 16A SP industrial sockets for lab equipment's as per the proposed drawings
9. 20A SP industrial sockets for lab equipment's as per the proposed drawings.
10. 32A SP industrial sockets for lab equipment's as per the proposed drawings.
11. 20A SP Isolators for Roller shutters.
12. 20A TP Isolators for Cage extract fans.
13. TP Isolators for HMD, DH etc...
14. 100A TP Isolators for FAHUs.
15. 160A TP Isolator for Chiller.
16. PVC Containment works for Data, CCTV, Access control & Public address systems.
17. Loads is to be hook-up to existing Diesel Generator
18. All the 3 phase connection needs to be fixed a ELR protection as applicable
19. CCTV installation should be inline with MCC approval and an additional one year maintenance should be considered in the offer, after completion of one year DLP

D. Fire alarm works

Design, supply, containment, cabling & installation of Fire alarm works as per the requirements as follows:

1. Smoke detectors including fire rated cabling.
2. Void detectors with remote indicators including fire rated cabling.
3. Heat detectors including fire rated cabling.
4. Fire alarm sounder including fire rated cabling.
5. Fire alarm sounder with flasher including fire rated cabling.
6. Fire alarm sounder with flasher (weather proof) including fire rated cabling.
7. Break glass/Manual call point including fire rated cabling.
8. Fire alarm sounder including fire rated cabling.

9. New fire alarm control panel.
10. Testing, commissioning & interfacing of fire alarm system with Building panel.
11. Coordination for 24x7 CDA main panel. We have considered only interfacing of the FACP with 24x7 CDA panel. Other all are under the scope of Civil defense.
12. ADCD shop drawing design & approval

E. Emergency lighting works

Design, supply, containment, cabling & installation of Emergency lighting works as per the requirements as follows:

1. Emergency lights including fire rated cabling.
2. Exit lights including fire rated cabling.
3. Testing, commissioning & integrating of Emergency lighting system with existing Central battery system by assuming that the panel have enough capacity to accommodate additional lights.
4. ADCD shop drawing design & approval.

F. Fire Fighting works

1. The Firefighting pump set is considered too be existing for the Vivarium area.
2. The Firefighting piping needs to be done for the Sprinkler heads as per the proposed Vivarium layout.
3. There is no such area in the Vivarium which requires clean agent fire suppression system. If in future, there is any requirement of clean agent system that will be additional scope.

3.0.4 TESTING CENTER – Audio and Video

The test Center (please see the attached drawing) consists of 2 independent rooms capable of seating 28 examinees in 4 rows. Each Station will be equipped with a 27" All-In-One Workstation. There is a Control Room with Glass partitioning between the two Rooms.

Contractor to provide integrated, full and comprehensive solution on the basis of relevant documents. Proposal to include full schematic design diagram indicating all components not limited to as describe herein.

The test center is expected to be used for conducting internal computer-based examinations as well as examinations offered by bodies like NBME, Prometric and PearsonVue.

The Test Center Rooms should be able to function independently for 2 different test sessions or be used as a combined Test Center for a Single Test Session. The Large Screen with Projectors will be used for Providing Instructions for the candidates and for making announcements regarding the test, including Time related messages.

Each of the testing Rooms will have 3 Projectors spaced equally as in the drawing with motorized Screens (120" or more) for Display. The Screens will have reinforced support (Tension Support). **The projectors will be ceiling mounted and retractable.** The projectors should be WUXGA with at least 6000 Lumens,

The inputs should be possible via HDMI inputs to each of these projectors individually, or from a central location in each room or via an input switcher from the control room. There should also be provision to use a wireless presentation system like BARCO. The Control Room should get precedence over the individual test rooms and the Test Rooms should have control only if the control is relinquished by the control room. The central switcher in the control room should have 6 inputs (From 4 AIOs + 2 Additional Inputs) with 6 outputs which can be combined in any manner.

4K Video signals shall be HDBaseT standard and run over a central superordinate AV-matrix switcher to ensure that every source can be connected to every sink within the Test Center without the need for manual patching.

There should be sufficient amount of ceiling mounted speaker for the announcement to be clearly heard by every test candidate in the two rooms. It should be possible to make announcements from each of the rooms or from the control room to either of the rooms. The switching should be possible from the control room.

The control Room should be equipped with Wired Microphones, Each of the test rooms should have provision for Wireless Microphones with receivers. Speech intelligibility enabled wireless microphone shall be provided that transmit via ultra-high frequency antennas. The audio signals of all microphones will run into the superordinate audio matrix for further signal processing and distribution.

The Audio System should support Super High-quality Wireless microphone system that supports digital predictive switching diversity for solid RF connection, automatic channel scan with cleanest frequency, IR sync transmitter, Ethernet networking setup across multiple receivers, Networked channel scan configures open frequencies for all connected receivers, and high-contrast LCD menu and controls with lockout feature. The mic devices should be rechargeable, and the system outputs should be connected to the superordinate audio matrix and to the sound system.

All AV equipment shall be controlled by a mobile touch panel connected to the control system. They should be completely customizable in terms of design and programming. The control processor provides all standard control- in and outputs like relays, infrared ports, serial ports and interfaces to the standard IP network.

Proctoring is an important part of the test center. Apart from proctoring by the Test Center Staff, a comprehensive Video Surveillance System should be installed in the test rooms. All the examinees should be visible all the time. In addition, on observation of any suspicious activity, there should be a possibility of zooming in on any attendee from at least 2 angles. This should be possible while maintaining overall visibility. The number of Cameras and their positions should be chosen to cater for these requirements. Test Center shall have multiple ceiling mounted Fixed and PTZ cameras for recording and monitoring purposes. Furthermore, all the cameras in the test center should be controllable by a Proctor from the monitoring room. Examiner shall be able to monitor the Examinee's activity and view the examinee's face and hands to identify any malpractice. Monitoring room shall have the standalone server with huge storage capabilities to record and playback the recorded camera contents. All the cameras shall have the inbuilt/external microphone

Reservation of the rooms via MS Exchange (MS Outlook) and the status "occupied" or "free" of the individual rooms can be indicated in real time by the system. The system should be capable of integrating with Crestron Fusion system used by the University.

1. LAN and Wireless Network Set up for the Test Rooms and the Control Room
 - Dual Gigabit network to Each Examinee Seat in the Room – One will be live the other Standby
 - Network Sockets near the Projectors

- Network Sockets at the two corners at the back
 - Network point (s) on the Ceiling to cover the Area – to be connected to the University Wireless System. WAPs will be provided by the University.
 - Network Switches with PoE – to cater for the Data and IP Cameras proposed.
2. Video System:
- Six 6K Ansi Lumens Laser Projector with Motorized Lift for both the rooms. (3 Each)
 - Six 116" Motorized Screen for both the rooms. (3 Each)
 - Wireless Presentation Devices for Each Projector
 - HDMI Wall Plate Extender.
 - Matrix Switcher with Input and Output Extenders.
 - Digital Signage Player.
 - All Camera and AV Systems should be PoE.
 - Power Sockets for the projector, Wireless Presentation Devices and a laptop near each Projector.
3. Audio System:
- Wireless Microphones: One Handheld and One Lapel Microphone per test center room with Receivers and Chargers
 - Audio Processing: Audio Processor and Amplifiers.
 - Ceiling Loudspeakers.
 - Wired Microphones in the Control Room – One for Each Test Room.
 - Audio Switching to combine Audio input to both the rooms.
4. Control System:
- Control Processor with Touch Screen Tablet and Wall Docking Station to control AV and Lighting. - There should be in addition to manual provisions for Lighting Control and AV Systems Control.
5. Video System for Proctoring
- The Room should be equipped with Video Surveillance System to capture activities of Each Examinee.
 - In particular the hands and face of the examinee should be covered.
 - There should be provision to Zoom in to see the the Examinees
 - All the Video should be stored using a suitable Video Archiving system
 - There should a provision to view all Cameras from the control room. There should be sufficient large display monitors in the control room to view all the cameras simultaneously while having the ability to select one / two on each monitor when closer inspection is required.
 - There should be provision to replay each camera independent at a later Stage.
 - The Videos should be automatically time stamped and synchronized.
6. Control Room / Proctor Room
- The Control Room is where the Chief Proctor observes the Test Rooms through the Glass Partitions of through the surveillance Cameras on the Large Screen Displays.
 - The Displays should be positioned in such a way that the view into the Test rooms is not obstructed.
 - There should be provision for at least 4 All-In-One workstations in the room
 - There should be Gigabit LAN connections to all systems.
 - The Rack for Network switches and AV Equipment should be housed in the Control Room.

- There should be provision in the Switches to connect 4 Servers (3 network ports each)
 - The switches (CISCO - 48 port PoE) should be stacked.
 - The Rack should be connected to the Nearest IDF room for connectivity to the University network.
 - The Control Room should be acoustically isolated from both the test Rooms.
7. Room Booking Displays
- The Testing Rooms should have Room Booking Displays that can be configured through Outlook Calendar. This should be integrated with the Crestron Fusion System available in the University.
8. Power Sockets
- Each Socket should be UK - Dual 13 A.

3.0.5 MULTI-PURPOSE HALL – Audio and Video

These rooms (please see the attached drawing) consists of 2 independent rooms capable of seating 30 in each room (in 5 groups of 6).

Contractor to provide integrated, full and comprehensive collaborative solution based on relevant documents. Proposal to include full schematic design diagram indicating all components not limited to as describe herein.

The seating for each group is flexible and the members of each group is expected to work with their portable devices (laptops / tablets) connected to the University Wireless. The rooms are expected to be provided with sufficient number of access points to ensure adequate coverage and bandwidth for about 50 connected devices.

Each group as indicated in the drawing, is expected to work independently – with a 65” TV which can be used to display one of the group member’s laptop / tablet. This should be achieved using a wireless device like Barco 200+ with 2 USB Buttons.

When used as a meeting room, the presentation will be done using a mobile Teacher / Speaker Podium with a Touch Screen PC integrated with Document Camera. (HoverCam Pilot 3 Plus Podium Preferred)

In front of the room, a Projector with at least 4000 Lumens, with 100” Motorized screen is required. The Screen should be capable of receiving inputs from the Teacher Podium and other 5 sources (5 other displays).

4K Video signals shall be HDBaseT standard and run over a central superordinate AV-matrix switcher to ensure that every source can be connected to every sink within the Instructional Studio without the need for manual patching.

There should be sufficient amount of ceiling mounted speakers for the Audio to be clearly across the room without any feedback.

The Room should be equipped with Wireless Microphones – one Lavalier and One Handheld. Speech intelligibility enabled wireless microphone shall be provided that transmit via ultra-high frequency antennas. The audio signals of all microphones will run into the superordinate audio matrix for further signal processing and distribution.

All AV equipment shall be controlled by a mobile touch panel connected to the control system. They should be completely customizable in terms of design and programming. The control processor should

provide all standard control-inputs and outputs like relays, infrared ports, serial ports and interfaces to the standard IP network.

Reservation of the rooms via MS Exchange (MS Outlook) and the status "occupied" or "free" of the individual rooms can be indicated in real time by the system. The system should be capable of integrating with Crestron Fusion system used by the University.

1. LAN and Wireless Network Set up for the Instructional Studio
 - Dual Gigabit network to each point as outlined in the Diagram – One will be live the other Standby
 - Network Sockets near the Projectors
 - Network Sockets at the two corners at the back
 - Network point (s) on the Ceiling to cover the Area – to be connected to the University Wireless System. WAPs will be provided by the University.
 - Network Switches with PoE – to cater for the Data and IP Cameras proposed.
2. Video System:
 - One ≥ 4000 Ansi Lumens Laser Projector with Motorized Lift for each room
 - One 116" Motorized Screen for each the rooms
 - Wireless Presentation Devices for Each Projector
 - HDMI Wall Plate Extender.
 - Matrix Switcher with Input and Output Extenders.
 - Digital Signage Player.
 - Video Cameras (PTZ) for Video Conferencing and Recording. The Recording should be configured to integrate with Panopto.
 - All Camera and AV Systems should be PoE.
 - 4 Wall Mounted Touch Screen (minimum 10 Point Touch) with built-in PC in each room.
 - One Portable - Trolley Mounted - Touch Screen (minimum 10 Point Touch) with built-in PC to cater for the Group in the Middle in each room.
 - Power Sockets for the projector, Wireless Presentation Devices and a laptop near each Projector.
 - Wireless Presentation devices to connect to the Touch Screen TVs.
 - Facility to Switch inputs from Any source to any Destination – in One to one and One to Many Mode.
3. Audio System:
 - Wireless Microphones: One Handheld and One Lapel Microphone per room with Receivers and Chargers
 - Audio Processing: Audio Processor and Amplifiers.
 - Ceiling Loudspeakers.
 - Ceiling Mounted Microphones
 - Wired Microphones in the Control Room – One for Each Test Room.
 - Audio-Switching to combine Audio input to both the rooms.
 - Localized Audio for each Group using Blue Tooth Speakers
4. Control System:
 - Control Processor with Touch Screen Tablet and Wall Docking Station to control AV and Lighting. - There should be in addition to manual provisions for Lighting Control and AV Systems Control.

5. Room Booking Displays
 - The Testing Rooms should have Room Booking Displays that can be configured through Outlook Calendar. This should be integrated with the Crestron Fusion System available in the University.
6. Power Sockets
 - Each Socket should be UK - Dual 13 A.

4.0 MATERIAL SPECIFICATION

All materials to be used for this project shall be as per the KU Standard. Installation of all items shall strictly follow and shall in accordance with the specifications, guidelines and instructions of the manufacturer. Materials shall be of European make unless otherwise mentioned. Materials as may deem suggest shall be energy efficiency and sustainable. Contractor to ensure that major component & spares parts shall be available for minimum 10-year period.

<i>Materials</i>		<i>Brand</i>
HVAC		
Strainer	-	Flowcon
IV Valve	-	Flowcon
DRV Valve	-	Flowcon
FCU	-	McQuay
FAHU	-	McQuay
AHU	-	McQuay
CCU	-	McQuay
Primary Pump	-	Regent Pumps
Secondary Pump	-	Regent Pumps
Package Unit	-	Rheem
Chiller	-	York
Lab Exhaust fan	-	Toshiba / Plastifer
Lift pressurization pump	-	Denair
Staircase pressurization pump	-	Denair
Smoke exhaust fan	-	Denair
Make up pump	-	Marathon
Pressurization pump	-	Flamco
VFD	-	Schneider
Thermostat	-	Regin
Actuator	-	Belimo
Dosing system	-	ROC / Prominent
Air curtain	-	Windream / totaline
Filter	-	AAF / excel air
Cooling tower filtration pump	-	Armstrong
Motorized valve	-	Centork / Flow conme / Belimo

ELECTRICAL

Switch and sockets	-	Schneider Electric
Electrical DB / SMDB	-	Schneider Electric
LED Light Fittings	-	Philips
LED tubes	-	Philips / Osram
Wires	-	UAE Brand
Armoured Cable	-	UAE brand
Electronic Ballast	-	Osram / Philips
Emergency lights	-	Inotec
LAN cable	-	CAT 6a, Belden or equivalent

PLUMBING

Angle Valve	-	Grohe
Hand Spray	-	Grohe/ Franke
Wash basin mixer	-	Schell
WC flash system	-	Geberit
Water Heater	-	Ariston
Soap Dispenser	-	Franke
Mirror	-	
Door closers	-	Dorma
Door Hinges	-	Dorma
Door Lock	-	Dorma
Wall putty	-	Jotun
Paint	-	Jotun

Civil

Concrete Block	-	AAC Blocks (Al Jazeera factory)
Cement	-	Highland Building Products,
Sand	-	Coarse sand,
Gypsum sheet	-	Knauf,
Sanitary ware	-	TOTO,
Toilet accessory	-	GROHE,
Mirror	-	Saint Gobain Glass
Ceramic tiles	-	Marazzi, Guocera,
Kitchen false ceiling Tiles	-	Chicago Metal Ceiling Solutions,
False ceiling tiles	-	Chicago Metal Ceiling Solutions,
False ceiling suspension	-	Chicago Metal Ceiling Solutions
Iron mongery	-	Door fit (DORMA, GEZE, Mandelli),
Door closers/		
Door frame/View Panel	-	DORMA,
Primer/Paint/Putty	-	JOTUN,
Aluminium	-	ALICO,
Steel Doors (Fire Rated)	-	AM Industries,

Wooden Doors	-	Fibrex Joinery,
Toilet Cubicle	-	Sunshine Cubicles and Lockers,
Antifungal Paint	-	M/S Chemipaint,
Waterproofing	-	Fibrex Waterproofing,
Rollup Shutters	-	M/S Fevco,
Vinyl Flooring	-	M/S Protect Middleeast,
Glass Partitions	-	M/S Smart Dimensions.

Specialised Services and Provider

Sliding Door	-	Dorma (SIBCA)
UPS	-	Siel / ABB (Site Technology)
Master Clock	-	Bodet (BMTS)
BMU	-	WAHLEFELD / CoxGOmyl (Brio)
Access Control	-	Salto (Emirates Link)
Air Compressor Unit	-	ATLAS COPCO (Aras)
ELEVATOR	-	KONE
Fire Fighting / Fire Alarm	-	Simplex (SIBCA)
Fume Hood	-	Labconco / Waldner (Smartcal)
Gate barrier	-	Came (SIBCA)
GENERATOR	-	SDMO (Site Technology)
Turnstile system	-	Ozak (Emirates Link)
Lighting Control	-	Clipsal C Bus (BMTS)
CCTV	-	(Axis) Golden shield
BMS	-	Azbil (Azbil)

5.0 VERIFICATION AND QUANTITY

The Contractor responsibility to carefully check and verify all items quantity and existing. Conditions on site before proceeding with any work. No variation shall be given for any discrepancies between the Drawings, Specifications and actual conditions on site.

Proposed configuration and arrangement shall be in accordance with standard ergonomic requirements and related local regulatory body after studying drawings, schemes and specifications. Contractor is hereby advice to check and verify site condition whenever applicable in order to come up with an executable plan in connection to dimensions as a whole.

5.0.1 ADDITIONAL GENERAL NOTE

Contractors should conduct detailed site visit and review the provided drawings and should provide the offer in line with the above indicative scope of work & BOQ. The offer should fully comply to the UAE Building codes, ADM , ADCD and other local and international standards.

Contractor should consider the existing specialist and life safety systems installed in the campus and the offer should be in full concurrent and compliance to the installed OEM system.(List of existing specailsit and life safety systems are attached in the annexure).

5.0.2 WARRANTY:

1. DLP period:	- 1 year
2. Maintenance/PPM during DLP:	- 1 year
3. Full Project Warranty:	- 1 year
4. Chiller:	- 1 year
5. Compressors:	- 5 year
6. Pumps:	- 2 year
7. FAHU	- 2 year
8. AHU	- 2 year
9. FCU	- 2 year
10. CCTV System	- 1 year DLP + 1 year additional maintenance
11. BMS	- 1 year
12. Access System	- 1 year
13. A/V	- 1 year
14. LED lights	- 5 year
15. UPS with battery	- 3 year
16. APM	- 1 year

Any other system installed other than mentioned above should be provided with 1-year warranty.

All contractors should sign and submit the Compliance statement attached in the annexure. Tenders without submission of compliance statement will not be considered.

6.0 TECHNICAL PROPOSAL – (vendors to include in the submittal)

Bidders shall submit the Technical Proposal, sequence listed in the below shall be followed, provide all information listed in below. Attach all supporting Documents. Follow the sequence of the list.

- 1) Letter, Statement of Site Inspection, confirming site inspection and understanding
- 2) Confirmation on understanding and full compliance to the Scope of Works & BOQ.
- 3) Unpriced BOQ
 - a. Bill No. 1 to 15 plus the Summary page
 - b. Separate Summary Page by Floor
- 4) Abu Dhabi Chamber of Commerce and Industry Registration Certificate (valid copy)
- 5) Trade License from Department Planning and Economy (valid copy)
- 6) Company Profile
- 7) Organization structure and key Personnel
- 8) Health, Safety and Environment Management
- 9) Bidders proposed QA/QC Plan & ISO certification
- 10) Experience in the related field of educational institute modification & upgrading in UAE, including separate lists of current projects & previous projects:
- 11) Technical Approach and Methodology,
- 12) Work Plan on Project management software

Contractor to submit detailed project schedule in accordance to all disciplines listed in the Scope of Works and BOQ. Working time frame is 24 weeks from the issuance of Letter of Award.

- 13) Manpower histogram and s curve with total number of manpower considered for the project
- 14) Subcontractor details
- 15) Technical specification/catalogue
- 16) DLP & Warranty confirmation

Contractor also to submit back CONFIRMATION AND TECHNICAL COMPLIANCE – PHASE 2 as part of this agreement, attached separately.

7.0 TECHNICAL CRITERIA

	SELECTION CRITERIA	Weight %
A. TECHNICAL COMPLIANCE		50
1	Tenderer's understanding of the scope of the project and technical presentation	
2	Compliance to Project & contract requirements	
3	Compliance to Scope of work	
4	Compliance to BOQ	
5	Compliance statement concurrence	
6	Technical Specification / Material compliance	
B.METHODOLOGY		10
1	Design methodology (Compliance to codes & standards)	
2	Method statement of works	
3	Division of works into subcontracts	
C. RELEVANT AND SIMILAR PROJECT EXPERIENCE		15
1	General experience, technical knowledge and project management skills required to deliver the Project	
2	Relevant expertise and competency in delivering similar Educational /technical installations/projects	
D.PROJECT EXECUTION PROCESS AND RESOURCES		15
1	Project Schedule with critical path, mile stones and priorities	
2	Delivery Period/ Project duration	
3	Manpower details & histogram	
E. TECHNICAL RESOURCES		5
1	Key personal CV	
2	Technical resources, Labours, by trade skills etc.	
3	Organization chart (Company & Project)	
F. EHS AND SYSTEM COMPLIANCE		5
1	Environment Health & Safety management system	
2	Certification and Accreditation (ISO/ HSE/ Bureau Veritas /Third party certificates ...etc.)	
	TOTAL	100

8.0 PROJECT DURATION / COMPLETION

24 weeks starting from the third (3rd) day upon issuance and receipt of Letter of Award

9.0 ATTACHMENT

1. CONFIRMATION AND TECHNICAL COMPLIANCE – PHASE 2 – to be retun back as part of the Tehcnical submittal
2. SCOPE OF WORK and BOQ
3. DRAWINGS: - Referencing BOQ / Bill locations

1) GROUND FLOOR

- Vivarium

2) FIRST FLOOR

- F1: - Testing Center
- F2: - Multi-Purpose Hall (Admission)
- Lab Spaces
 - F3: - Freezer Room
 - F4: - Copy Room
 - F5: - Closed Office
 - F6: - Store
 - F7: - Autoclave
 - F8: - Typical Future Lab space

3) SECOND FLOOR

- S1: - Balsam
- S2: - Second Floor Offices
- Lab Spaces
 - S3: - Tissue Culture Lab
 - S4: - Walk-in Freezer, Cold Store
 - S5: - Store
 - S6: - Typical Future Lab Space

4) THIRD FLOOR

- T1: - Third Floor Offices
- Lab Spaces
 - T2: - Tissue Culture/PCR Lab
 - T3: - Store
 - T4: - Typical Future Lab Space
 - T5: - Freezer Room
 - T6: - Autoclave

5) FOURTH FLOOR

- F1: - Birthing Suite
- F2: - Immersive Cave
- Lab Spaces
 - F3: - Autoclave
 - F4: - Kitchen
 - F5: - Freezer Room
 - F6: - Typical Future Lab Space
 - F7: - Store

➤ **NOTE: Other than the above, all proposed drawings, As-Built and other related services layout have already been provided**