جامعة أم القرى
UMM AL-QURA UNIVERSITY

College of

Engineering and Architecture

Department of

Architecture

Resources, Facilities and Equipment

2025 -2026

3 Resources, Facilities and Equipment

3 Resources, Facilities and Equipment

3.1 Introduction

To meet the needs of teaching and learning in the program, it must be there adequate facilities and equipment followed up over the use of facilities and equipment, and that the assessment is carried on a regular basis for their adequacy through consultations with faculty, staff and students. Therefore, the program representatives must be put up in the planning for provision of facilities, equipment, maintenance, and to ensure the development of appropriate specifications for the needs of the program. And check the provision of facilities and equipment, and the balance between the needs of the program and policies of the educational institution in order to ensure compatibility of systems and resources available.

The DA provides multiple opportunities for faculty members and students to collaborate and discuss projects and research activities. The DA has a secretarial support readily available for all faculty members and students.

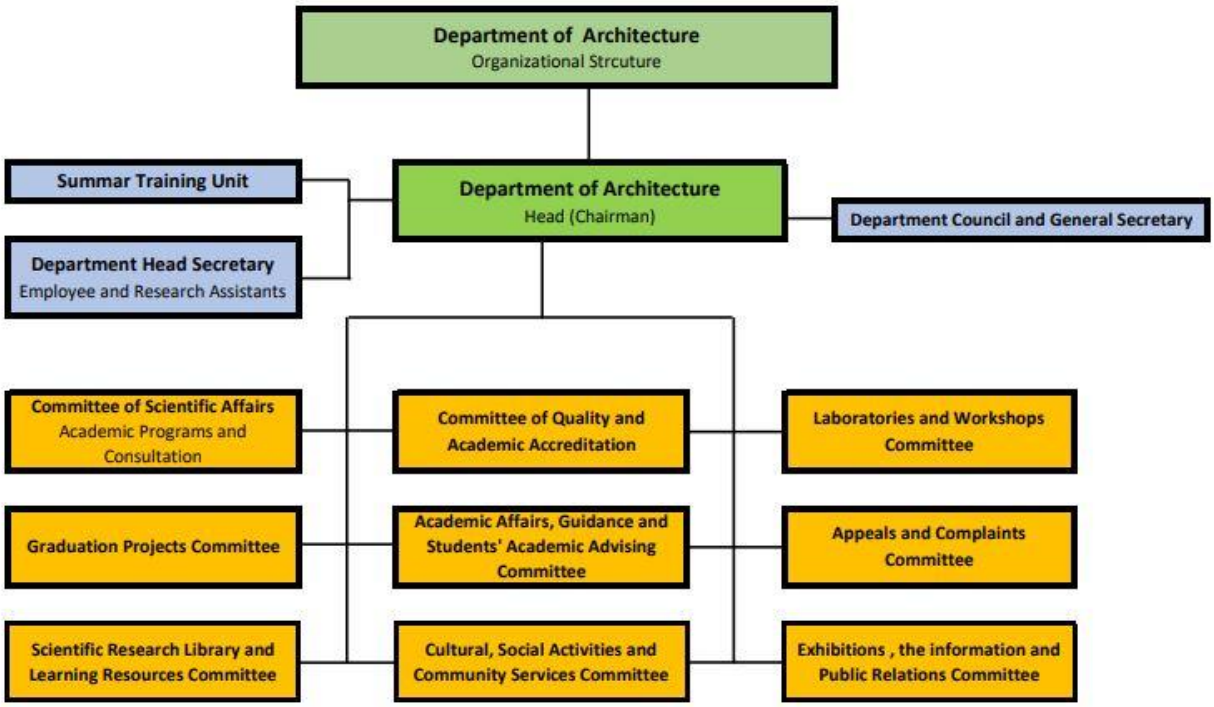


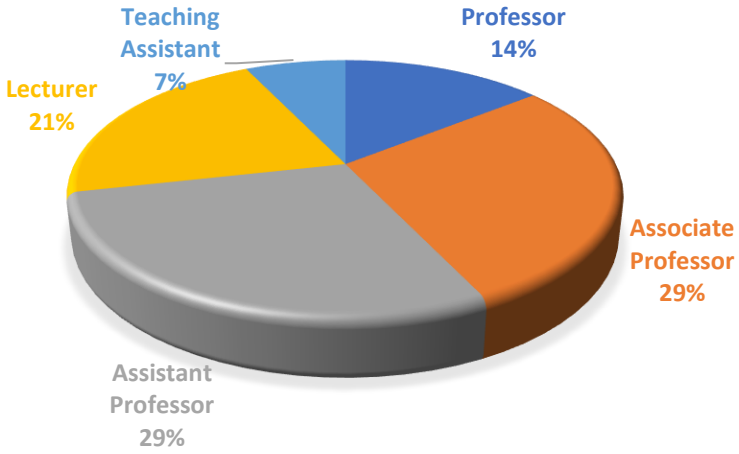
Figure (3.1) Organizational Structure for DA

3.2 Faculty members in The Department of Architecture (DA)

The faculty member is the key element in the learning process. The structure of faculty members in the DA based on five categories; Professor, Associate Professor, Assistant Professor, Lecturer, and Assistant. The following Table 3.1 will show the occupation in the DIA and Illustrate the percentage of scholarships, Lecturer, Teaching Assistant, Lecturer, Assistant Professor, Associate Professor, and Professor in functional framework.

Table 3.1: illustrates the profession in the Department of Architecture

Ranking	No of Staff	Saudi	Non-Saudi
Professor	4	1	3
Associate Professor	8	8	0
Assistant Professor	8	8	0
Lecturer	6	6	0
Teaching Assistant	2	2	0
Total	28	25	3



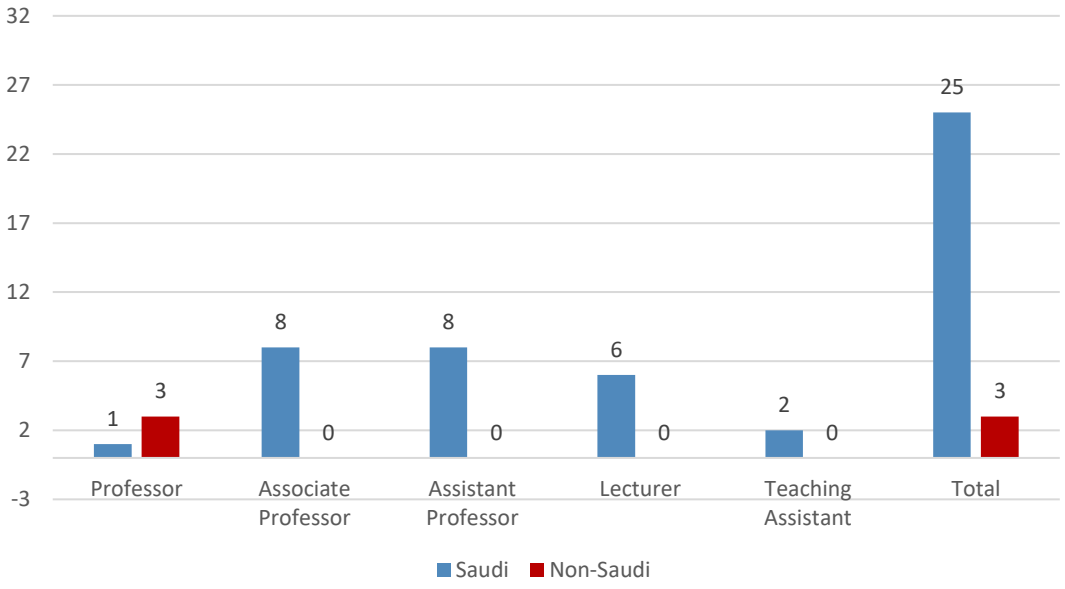


Figure 3.2 Percentage of Saudi to Non-Saudi Faculty Members

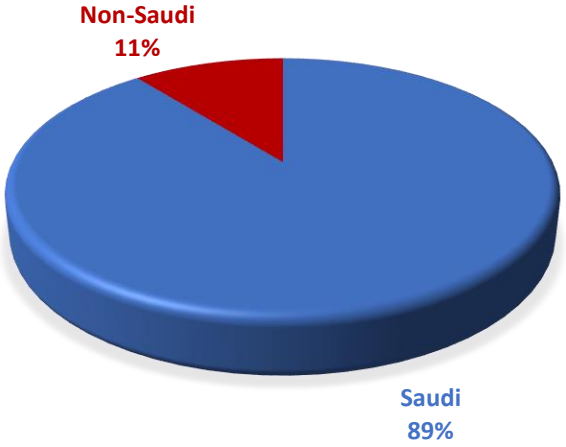


Figure (3.3) Illustrates the ratio of Saudi to Non-Saudi faculty members in the DA

Table 3.2: Requirements to applicate Study Plan 1444 in the DA

Statement	Faculty members					Administrators	Technicians
	Professor	Associate Professor	Assistant Professor	Lecturer	Teaching Assistant		
Available	**4**	**8**	**8**	**6**	**2**	**2**	**0**
Required	**10**	**14**	**10**	**10**	**6**	**3**	**6**

The following Table will introduce the faculty members with a brief biography
Table 3.3: List of faculty members.

	Name: OUMR ADNAN A OSRA Academic rank: Associate Professor Specialization: Architecture Interest area: Sustainable Architecture Graduation University: RMIT University Contact: oaosra@uqu.edu.sa
	Name: Adel Mohammd Binyaseen Academic rank: Professor Specialization: Architectural Design Interest area: Spatial analysis, POE, Facility Management Graduation University: Strathclyde- UK Contact: ambinyaseen@uqu.edu.sa
	Name: Mohamed Atef Elhamy Kamel Academic rank: Professor Specialization: Urban Design Interest area: Sustainability and Environmental Design Graduation University: Alexandria University - Egypt Contact: makamel@uqu.edu.sa
	Name: Mohamed Wahba Ibrahim Khalil Academic rank: Professor Specialization: Sustainable Urban design Interest area: Sustainability and Urban Development Graduation University: Alexandria University - Egypt Contact: mwkhalil@uqu.edu.sa
	Name: Ehab Farouk Rached Academic rank: Professor Specialization: Environmental design Interest area: Sustainability and Environmental Design Graduation University: Cairo University- Egypt Contact: efrached@uqu.edu.sa

	Name: Ibraheem Nooruddeen Al-bukhari Academic rank: Associate professor Specialization: BIM Applications in Construction Management Interest area: Construction Management Graduation University: University of Waterloo Contact : inbukhari@uqu.edu.sa
	Name: Wadi A Al-Barqawi Academic rank: Associate Professor Specialization: Digital Architecture Interest area: Architecture Design Graduation University: Umm Al-Qura University Umm Al-Qura University Contact : wabarqawi@uqu.edu.sa
	Name: Wajdy Sadagh A. Qattan Academic rank: Associate professor Specialization: Architecture Interest area: Digital Architecture Graduation University: Umm Al Qura University. University of Technology Sydney. Contact: wsqattan@uqu.edu.sa
	Name : Majrashi, Abdulrahman Abdulaziz M Academic rank: Associate Professor Specialization: Urban & Regional Planning Interest area: Planning Decision Support System Graduation University: University Technologi Malaysia Contact : aamajrashi@uqu.edu.sa
	Name : Abdulhafeez Ahmad Alwafi Academic rank: Associate Professor Specialization: Interior Design Interest area: Architecture Design Graduation University: Contact : aawafi@uqu.edu.sa
	Name: Naif Sultan Alaboud Academic rank: Associate Professor Specialization: Construction Management Interest area: Architecture Design - BIM - Mobile Computing - ICT - Construction Management - Communication Management Graduation University: Salford University - United Kingdom Contact : nsaboud@ uqu.edu.sa

	Name: Badr Mohammed A Alsolami Academic rank: Associate Professor Specialization: Architecture & Urban Design Interest area: Design, BIM, Crowd Management, Urban Design, Graduation University: SYDNEY UNIVERSITY - AUSTRALIA Contact : bmsolami@uqu.edu.sa
	Name: Alshahrani Adnan Yahya Academic rank: Assistance Professor Specialization: Islamic Architecture/ Urban Design Interest area: Sustainability/ Housing/ flood control Graduation University: UQU- Saudi Arabia / SCAD- USA Contact : ayshahrani@uqu.edu.sa
	Name: Fares Saad Alsaygh Academic rank: Assistance Professor Specialization: Environmental & Interior Architecture Interest area: Healing Spaces - Healthcare Design - Human Behaviors - Environmental & Smart Design Graduation University: (KAAU - KSA)+(SCAD - United States) Contact : fssaygh@uqu.edu.sa
	Name: Abdullah Saeed Karban Academic rank: Assistance Professor Specialization: Urban and regional planning Interest area: Urban sustainability Graduation University: UTSA- USA Graduation University: Chatham University- U. S Contact: askarban@uqu.edu.sa
	Name: Abdullah Abdulhameed Bagasi Academic rank: Assistance Professor Specialization: Science of the built environment Interest area: Sustainable design Sustainability daylighting built environment Graduation University: Arizona State University Contact: aabagasi@uqu.edu.sa
	Name: Mohammad Abdullah Almahdi Academic rank: Assistance Professor Specialization: Architecture Interest area: Urban Design Graduation University: King Abdulaziz University Saudi Arabia Contact : mamahdi@uqu.edu.sa

	Name: Yahya Muhammad Nabhan Academic rank: Assistance Professor Specialization: Architecture Interest area: Urban Design, Sustainable Design, OTS, Green Architecture. Psychology and Urban Design Graduation University: K.A.A.U Contact : ymnbhan@uqu.edu.sa
	Name: Mohanad Ahmad Alfelali Academic rank: Assistance Professor Specialization: Architecture Interest area: Architecture Graduation University: Umm AlQura university Saudi Arabia Contact: mafelali@uqu.edu.sa
	Name: Eba Khaled Khan Academic rank: Teaching Assistant Specialization: Architecture Interest area: Architecture Graduation University: Umm AlQura university Saudi Arabia Contact: ekkhan@uqu.edu.sa
	Name: Mohammad Altaher ALJIFRI Academic rank: Lecturer Specialization: Construction Management Interest area: Risk management in construction, Design process, Urban design, Landscape Architecture Graduation University: University of Liverpool, UK Contact: mmjifri@uqu.edu.sa
	Name: Husam Ahmed Murad Academic rank: Lecturer Specialization: Architecture Interest area: Digital Architecture Graduation University: Umm AlQura university Saudi Arabia Contact: hakmurd@uqu.edu.sa
	Name: Binobud, Trad Mohammed ali M Academic rank: Lecturer Specialization: Islamic Architecture Interest area: Architectural Mechanism Graduation University: Um Al Qura University Contact : tmbinoboud@uqu.edu.sa

	Name: Lewaa Mohammad Kabli Academic rank: Lecturer Specialization: Architecture Interest area: Building management Graduation University: Saudi Arabia Contact : Lmkabli@uqu.edu.sa
	Name: Mohammed Dakhilallah S. Alharthi Academic rank: Lecturer Specialization: Islamic Architecture Interest area: Architecture- Urban Design- Kinetic Architecture- Architectural Sociology Graduation University: Umm Al-Qura University Contact : mdharthi@uqu.edu.sa
	Name: Telmesani, Mohammad Abdulwahab m Academic rank: Lecturer Specialization: Urban Planning Interest area: Architecture Graduation University: Umm Al Qura University, KSA Contact: Matelmesani@uqu.edu.sa
	Name: Fahmi Fouad Bahmdan Academic rank: Teaching Assistant Specialization: Advance Architecture in Design Technology. Interest area: Architecture Technology Graduation University: Umm Al Qura University Saudi Arabia Contact: ffbahmdan@uqu.edu.sa
	Name: SALAMAH, SALEH FAROOK Academic rank: Teaching Assistant Specialization: Islamic Architecture Interest area: Working Drawings, Architectural Design Graduation University: Umm AL-Qura University, Saudi Arabia Contact: sfsalamah@uqu.edu.sa

3.3 Possibilities and equipment in The Architecture Department

College of Engineering and Architecture began through the opening of the Department of Islamic architecture in the year 1402 H, under the umbrella of the College of Applied Science and Engineering, as a first engineering department.

Then follow the opening of the other three Departments, the Electrical Engineering Department, and Department of Computer since, and civil engineering, finally the department of mechanical Engineering.

3.3.1 Department Spaces

The DA located in a modern three-story building with in the faculty building in the main men Campus. The DA extended over three stories. The building. has good complete equipment for education.

The DA has allocated a number of diverse faculty rooms for faculty members; there are single rooms with respect for faculty member's. The rooms have good ventilation and lighting, cable and wireless NET with good Office furniture. See (plan)

The DA also has a number of studios, classrooms and halls for teaching architecture program. Faculty members, and students enjoy sufficient teaching spaces and excellent resources conducive to delivering our degree programs. See (table and plan)

The DA has one laboratory for computer, 11 studios.

Classrooms are obtainable on demand from the college, thy are distributed as shown in the next figures and with the following table. All teaching spaces are prepared with effective technical tools such as Data show. Moreover, there are 4 Labs and workshops.

With the commencement of the forty-four-study plan, the integration of computer software became prevalent throughout a majority of the DA courses. Computers have become an integral component of students' academic resources. The decision was made to refrain from updating the existing laboratories. Instead, a decision was taken to reuse the laboratories as work-study hubs, always giving students unrestricted access. This arrangement enables students to use the labs for various purposes, such as holding meetings, charging their computers, and accessing the university's wired network to avail themselves of services such as the library. Simultaneously, this vision enabled the utilization of all department halls and studios for the purpose of conducting computer lessons according to a predetermined timetable. Enabling more adaptability in the programming of the class's schedule.

The DA aspire in the foreseeable future to provide 10 studios and equipping the existing laboratories and workshops with required equipment's.

In the University building, there is a restaurant and a cafe available for students, staff and other people. Staff have their own restroom.

A room has been reserved for students' Activities. Table 3.3 shows the distribution of the classrooms and the laboratories in Department.

Table 3.4: The Requirements of classrooms and laboratories and other academic spaces in the Department of Islamic Architecture.

Facilities/possibilities	Available	required	Available Equipment	Required Equipment
Design Studios	11	16	Available	Yes
Labs and workshops	4	6	Available	Yes
Offices for Faculty members and administrative staff	32	50	Available	Yes
library	1	1	Accepted	Yes

Figure (3.4): Ground Floor plan for The Faculty of Engineering and Architecture

Figure (3.5): First Floor plan for The Faculty of Engineering and Architecture

Figure (3.5): First Floor plan for The Faculty of Engineering and Architecture

Figure (3.6): Main entrance Court

Figure (3.7): Ground Floor plan for Architecture Department

Figure (3.8): College of Engineering and Architecture (Left & middle) Main Corridor

Figure (3.9): First Floor plan for Architecture Department

Figure (3.10): Second Floor plan for Architecture Department

3.3.2 Teaching rooms

Studios and class rooms are situated on the three floors of the department (see figure 14). They are in different size. Some of the rooms are suited for 30 students, other rooms can suite more. Teaching rooms for students are well-lit and ventilated, and central air conditioned.

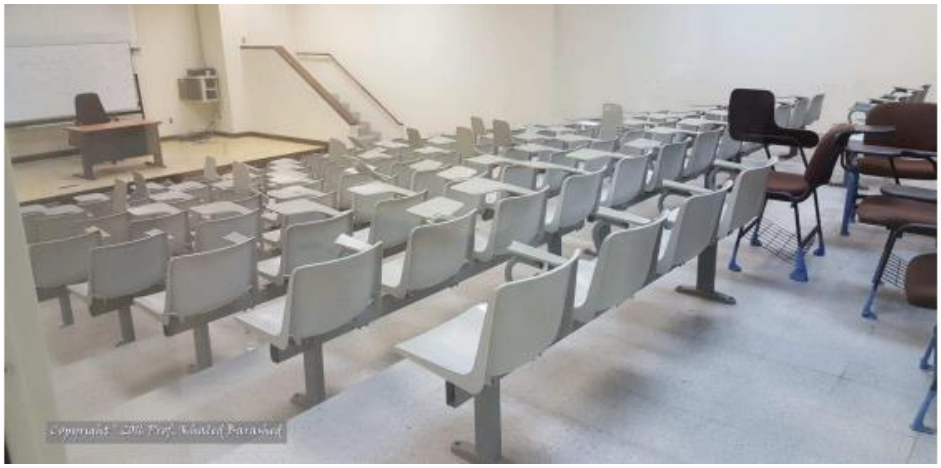


Figure (3.11): Lecture Room at the college of Engineering and Architecture

3.3.3 Digital Fabrication Laboratory (DFL)

The importance of the Digital Fabrication Laboratory (DFL) for architecture students:

Fabrication Laboratory is essential resource for architecture schools for several reasons:

Table 3.5 Ten reasons shown why Fab Lab is important for Architecture sdudents

#	The reason	Description
1	Hands-On Learning	Fab Lab provides students with the opportunity to engage in hands-on learning experiences. This is particularly valuable in architecture education, as it allows students to move beyond theoretical knowledge and gain practical skills in design and construction. They can experiment with various materials, techniques, and prototypes, fostering a deeper understanding of architectural principles.
2	Design Iteration	Architecture is a discipline that requires extensive design iteration. Fab Lab enable students to create physical models and prototypes, allowing them to test and refine their design concepts more efficiently. This iterative process is crucial for developing innovative and functional architectural solutions.
3	Multidisciplinary Collaboration	Fab Lab is often open to students from various disciplines, promoting interdisciplinary collaboration. Architecture students can work alongside engineers, artists, and designers, which can lead to innovative solutions that consider a broader range of perspectives and expertise.
4	Access to Advanced Tools	Fab Lab is equipped with advanced digital fabrication tools, such as 3D printers, laser cutters, CNC routers, and computer-aided design (CAD) software. These tools enable students to create complex and precise architectural models and prototypes that would be challenging to achieve by traditional means.
5	Sustainable Design Practices	Fab Lab can support sustainable design practices by allowing students to experiment with eco-friendly materials, energy-efficient designs, and sustainable construction methods. This aligns with the growing emphasis on sustainability in architecture.
6	Real-World Skills	The skills acquired in Fab Lab are directly transferable to the professional world. Architecture graduates who are proficient in digital fabrication and rapid prototyping are better prepared for the demands of the industry, where technology plays an increasingly important role.
7	Enhancing Creativity	Fab Lab encourage creative exploration by removing some of the limitations associated with traditional architectural modeling and prototyping. Students can push the boundaries of design and construction, leading to more innovative and imaginative projects.
8	Community and Networking	Fab Lab often foster a sense of community among students and faculty. They provide a space for collaboration, knowledge sharing, and mentorship, which can enhance the overall educational experience and help students build professional networks.

9	Research Opportunities	Fab Lab can support research in architectural design, materials, and construction techniques. Faculty and students can use these facilities to investigate new ideas, materials, and technologies, contributing to the advancement of the field.
10	Preparing for Industry Trends	The architecture industry is evolving rapidly, with a growing emphasis on digital technology, parametric design, and sustainable practices. Fab Lab help architecture schools prepare their students for these emerging trends and the changing demands of the profession.

In conclusion, it plays a crucial role in architecture schools by providing students with hands-on experiences, access to advanced tools, and opportunities for collaboration and innovation. It helps bridge the gap between theoretical knowledge and practical skills, preparing students for successful careers in architecture while fostering creativity and sustainability in their work.

Historical background:

The notation of creation DFL started in 2018 to fulfill the teaching requirements. However, DFL officially established late 2020. Now, DFL opens its doors every day from Sunday till Thursday for students, faculty and others (except the official holydays).

The organizational structure of the laboratory

Figure 3.12 shows the organizational structure of DFL, which as follows:
The University Educational Services (UES): provides all required machines, equipment and staff.

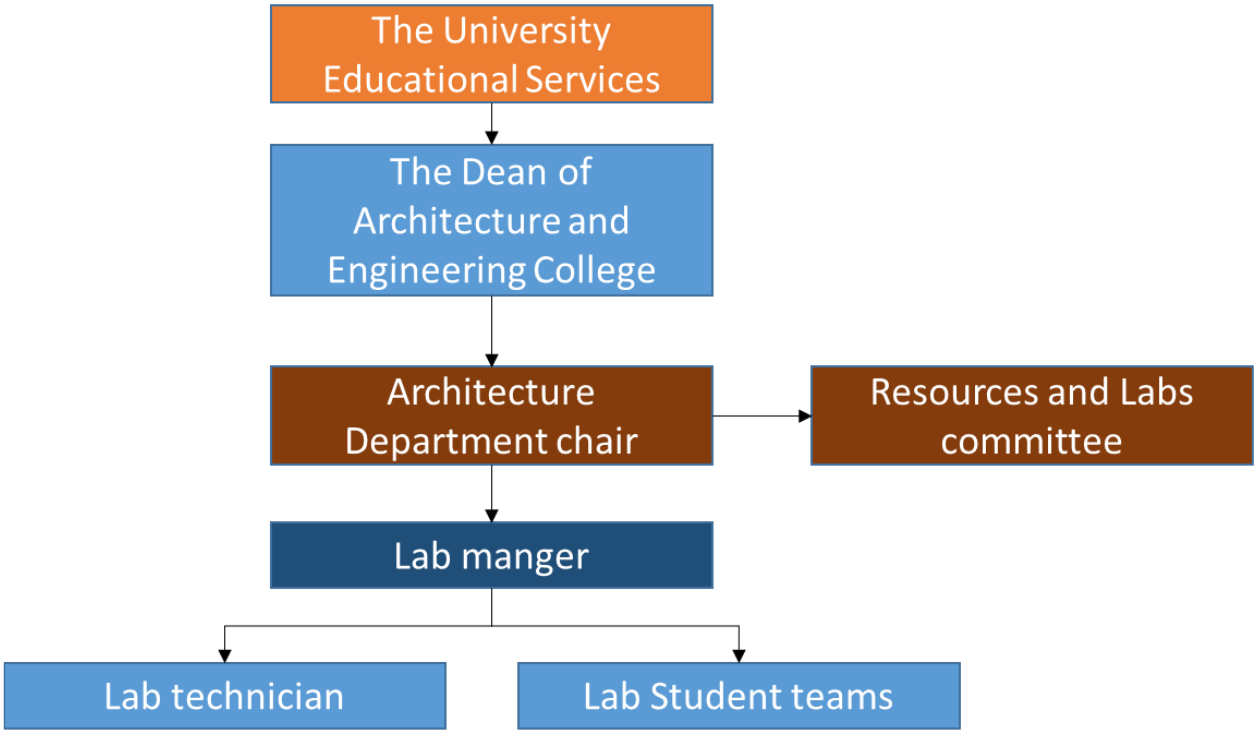


Figure 3.12. The organizational structure of DFL

a) The Dean of Engineering College and Architecture: is the college body that contacts with UES for any re-equipment's based on the departmental re-equipment's (via Architecture Department Chair).
b) Architecture Department Chair: provides any requirement for DFL as the departmental "Resources and Labs committee" requires.
c) Resources and Labs Committee: provides all the specifications for any machines, equipment and sources for DFL.
d) DFL manager and technicians: the lab manger with the support of the lab technician and student teams operates the daily activities in DFL.

The equipment

DFL contains different equipment, as Table 3.6 illustrates:

Table 3.6 DFL current equipment (October 2023)

#	Name of the tool	Specifications	Q
1/A	Laser Cutter CO2 Glass Laser Tube (1200*1600 mm), 150Watt.	Laser cutting and engraving machine, working area 1200*1600mm. 150watt, stepping/Drive Japan YASKAWA Servo Motor and Drivers. Water Cooling pump or Compressor, 750W Exhaust fan (with Air filter), Aluminum Blade (vector) worktable, WiFi and USB ports. auto up*down worktable. Auto Focus with Red dot pointer, Rotary device, Power Supply: AC 220V one phase, Laser Work software compatible with windows10, (CorelDraw_ AutoCAD_ Illustrator, Graphic format Compatible LAS, etc.), DWG, DXF, DST, PLT, AI, DST, PLT, HPGL, supported. Spare Parts: 2 laser tube 150watt, 10 sets of each Lens and Reflect Mirrors.	2
1/A.A	Laser Cutter CO2 Glass Laser Tube (1200*1600 mm), 80 Watt.	Aser cutting and engraving machine, working area 1200\ך.·*mm. 80watt, stepping/Drive Japan YASKAWA Servo Motor and Drivers. Water Cooling pump or Compressor, 750W Exhaust fan (with Air filter), Aluminum Blade (vector) worktable, Wi-Fi and USB ports. auto up*down worktable. Auto Focus with Red dot pointer, Rotary device, Power Supply: AC 220V one phase, Laser Work software compatible with windows10, (CorelDraw_ AutoCAD_ Illustrator, Graphic format Compatible LAS, etc.), DWG, DXF, DST, PLT, AI, DST, PLT, HPGL, supported. spareParts: 2 laser tube 150watt, 10 sets of each Lens and Reflect Mirrors.	2
1/B	Computer: to operate the Laser Cutter	Intel Core i7-9700K 3.60GHZ 12MB Processor, 32GB (8GBx4) DDR4/3000MHz, ASRock Z390 Phantom Gaming 4 -CB ATX, 512GB Intel 660P M.2 NVME SSD + 3TB SATA III Hard Drive, Case Mid-Tower Gaming Case and at least	4

		4*120mm fans, Corsair Hydro H100i PRO RGB 240mm Liquid CPU Cooling System w/ Copper Cold Plate, Video Card ASUS GeForce® GTX 1070 Turbo Edition 8GB GDDR5, Power Supply (1000Watts), Mouse, Keyboard, Display Monitor (24"LED-Full HD), Windows10. With compatibility confirmation Certificate.	
2/A	3D Printers.	Printer type(FDM), Dual extrusion, supported materials (Nylon, PLA, ABS, CPE, CPE+, PVA, PC, TPU 95A, PP, and Breakaway), Filament diameter (2.85 mm), Build volume (330 x 240 x 300 mm), Travel speed (300 mm/s), Open Source, Open filament system, heated glass build plate, Active leveling, Supported file types (STL, OBJ, X3D, 3MF, BMP, GIF, JPG, PNG), File transfer (WIFI, LAN or USB), Operating system: Windows10.	5
2/B	Computer: to operate the 3D Printers	Printer type(FDM), Dual extrusion, supported materials Nylon, PLA, ABS, CPE, CPE+, PVA, PC, TPU 95A, PP, and Breakaway), Filament diameter (2.85 mm,(Build volume (330 x 240 x 300 mm), Travel speed (300 mm/s), Open Source, Open filament system, heated glass build plate, Active leveling, Supported file types (STL, OBJ, X3D, 3MF, BMP, GIF, JPG, PNG), File transfer (WIFI, LAN or USB), Operating system: Windows10.	5
3/A	CNC Router 4 Axis (1300*2500*200mm).	Working area (1300*2500*200mm), 5.5kw water cooling spindle (Speed: 24000 RPM), DSP handle controller, Mach3 control system with USB port, XY Taiwan HIWIN 20mm linear square guide rail, Z axis Taiwan TBI ball screw transmission, Vacuum table and T-slot Table, 5.5KW vacuum pump, Japan YASKAWA Servo Motor and Drivers, Automatic oil lubrication, Tool sensor (4pcs collets), Rotary device, 4.0kw double bag dust collector, Fuling inverter, Soft Limited switch, Hard limited switch, Tool box, Machine material (Heavy steel welding structure, thick steel beams) Flash memory (512M), English Software (RhinoCam, Type3, Artcam), Command language (HPGL, G Code, .u00, .mmg, .plt), Working Voltage (AC380V/50/60Hz, 3PH), Operating system: Windows10 (DSP, NC-STUDIO, Mach3 controller).	2
3/B	Computer: to operate the CNC Router 4 Axis	Intel Core i7-9700K 3.60GHZ 12MB Processor, 32GB (8GBx4) DDR4/3000MHz, ASRock Z390 Phantom Gaming 4 -CB ATX, 512GB Intel 660P M.2 NVME SSD + 3TB SATA III Hard Drive, Case Mid-Tower Gaming Case and at least 4*120mm fans, Corsair Hydro H100i PRO RGB 240mm	2

		Liquid CPU Cooling System w/ Copper Cold Plate, Video Card ASUS GeForce® GTX 1070 Turbo Edition 8GB GDDR5, Power Supply (1000Watts), Mouse, Keyboard, Display Monitor (24"LED-Full HD), Windows10. With compatibility confirmation Certificate.	
4	Large Format Printers (44in and above)	Print speed(866 ft²/hr.), Memory (128 GB (virtual)), Internal Storage (500 GB self-encrypting), Print quality (Color: Up to 2400 x 1200 optimized dpi), Number of print cartridges (6 (cyan, magenta, yellow, matte black, photo black, chromatic red), Ink types (Pigment-based), Finished output handling (Two automatic roll feeds, smart roll-switching, top sheet feed, media output bin, automatic horizontal cutter and vertical trimmer (cuts all HP Z-series printer-qualified media, including most canvas)), Media sizes standard sheets, rolls (11 to 44-in), Print languages (Adobe PostScript 3, Adobe PDF 1.7, TIFF, JPEG, CALS G4, HP-GL/2, HP-RTL), Minimum Dimensions (W x D x H)(1802 x 695 x 998 mm), Weight (96 kg),10 Rolls of high quality glossy paper.	5
5	Foam cutter machine.	Folding Manual Table (Hotwire Cutting Bow can be fixed on Table from vertical to 45° position. Designed to work comfortably on site enabling to cut straight or biased various Foam like EPS / EPS Graphite insulation /XPS/ PE/ PPE/ PIR/ PUR…), Dimensions (Height, Length, Width) (86cm, 150cm, 75cm), Cutting Wire length with Bow fixed at the table with angles: 90 °:= 40cm45 °: =49 cm, Unit dimensions (32 cmx 10 cmx 21cm), Voltage: 110 VAC - 60 Hz or 230 VAC - 50 Hz, 150VA. 30 White PVC Foam Board (20cm H,122cm W, 244cm L)	4
6	Cutter plotter.	Driving method (Friction feed/Digital control servo motor), Maximum cutting area (Width1651mm), Maximum cutting speed(During cutting (850 mm/sec) (in all directions)During tool-up (1202 mm/sec), Cutting force(1to85cm/sec,20to350 grams force), Mechanical resolution (0.0035 mm/step), Repetition accuracy (0.1 mm) or less, Buffer size 2MB (buffer size:8MB), Power supply (AC 100V to 240V ±10% 50/60Hz 1.2A), Dimensions with stand (2155(W)x 727(D)x 1113(H)mm), Standard accessories (Power cord, blade holder (XD-CH2), pin, blade, blade (ZEC-U5022), alignment tool, cable clamp, replacement blade for sheet cutter, USB cable, Roland software CD-ROM, setup guide, user's manual)	2

7	Disposal Materials, Operation Tools, and Storage	Based on the requirements.	N/A
8	Others	a) Fingerprint log in system for each device. b) CTTV security camera 24/7, interior and exterior + software and recoding storage. c) Plywood 2,4,6,8 mm, 122x244cm 50 units each. d) Wood bulk 3m x 30 cm x 5 cm, 50 units.	N/A

DFL size and capacity

The size of DFL is around 200 m^2 (18 * 11.20) and the maximum capacity of DFL - at the same time - is **30 students** (people) to use the lab properly and for safety and security.

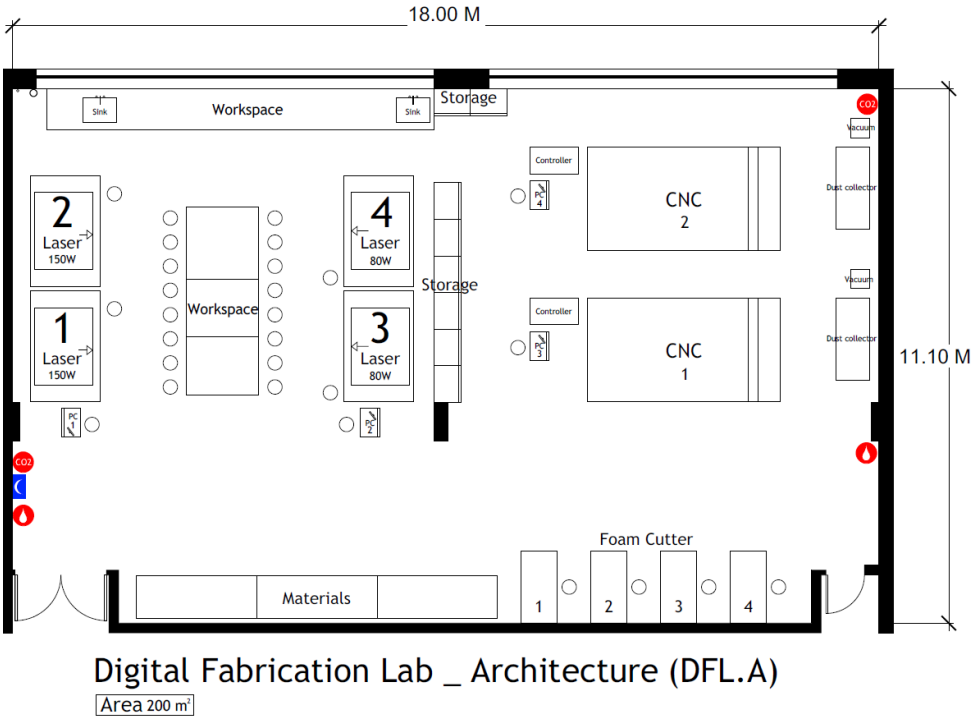


Figure 3.13

Safety management

In such labs security and safety are a must. However, to achieve this different safety instructions, procedures and equipment are required, which are as follows:

a) Instructions: There are three types of instructions: conducting training for all lab users, pin instructions sheet beside each machine and warning labels.

b) Procedures: providing evacuation plan (Emergency exits), planning training strategy for each machine and labelling all machines and equipment.

c) **Safety equipment:** providing fire extinguishers - first aid kits - ventilation system and fire blanket.

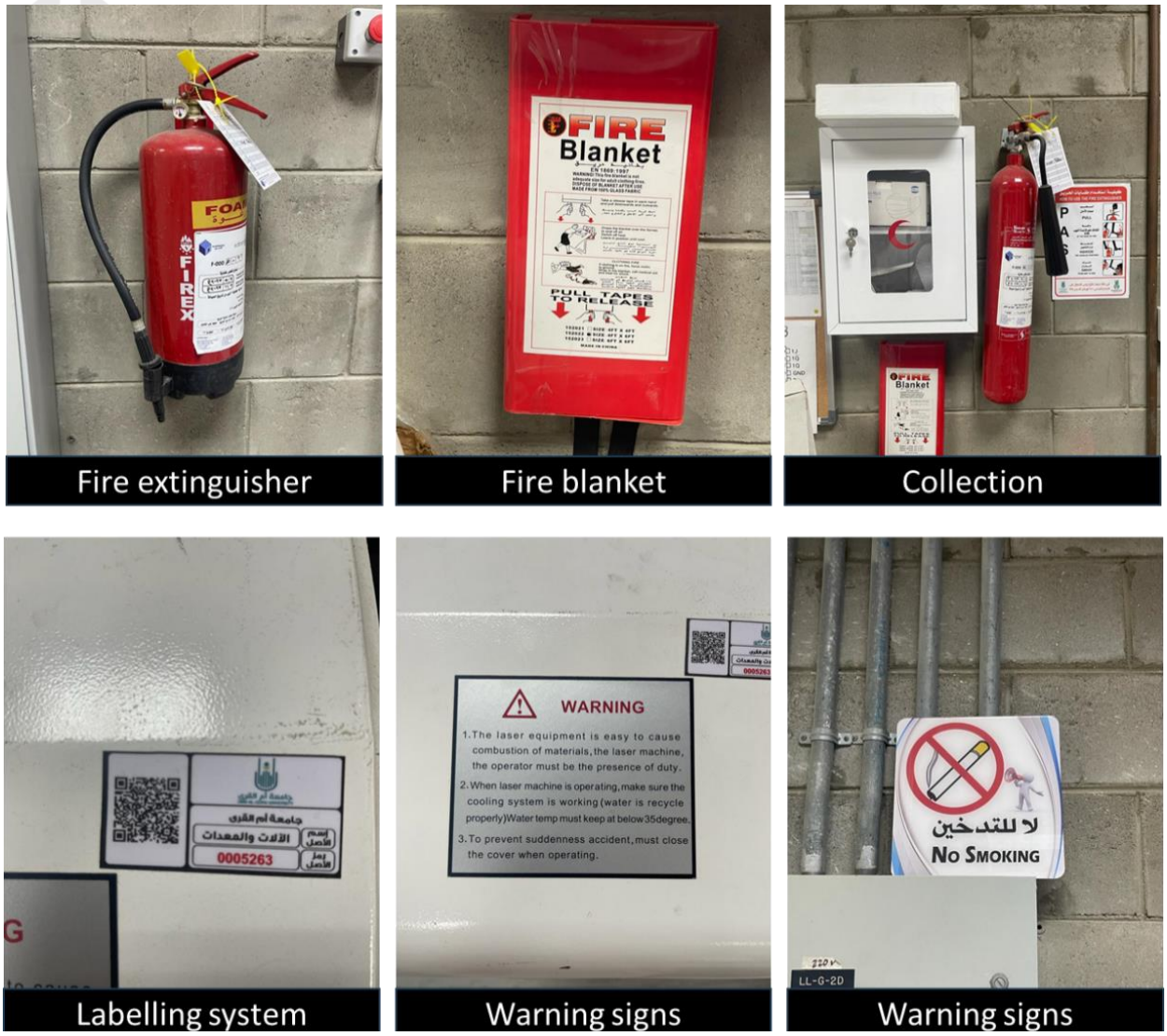


Figure 3.14. Safety management instructions, procedures and equipment at DFL

Other activities

DFL has different activities, which are summarized as follows:

a) Training: trained over 200 students and more than 20 faculty members at UQU.

b) Operation: over 1000 operational hours (inside and outside the school).

C) Collaboration: different collaboration with higher management at UQU (Commemorative shields) or with Faculty of Medicine at UQU.


Figure 3.15. Students work at DFL

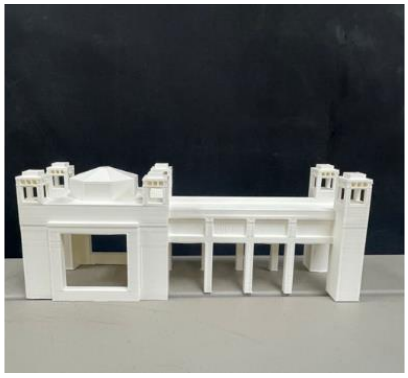




Figure 3.16. Collaborative work for the higher management at UQU (Commemorative shields)


Figure 3.17. Collaborative work for Faculty of Medicine

Future visions

DFL has different future visions to achieve, which can be summarized as follows:

1. Increase the number of trainees' students, faculty members and others.
2. Updating the lab equipment if required.
3. More operation hours.
4. Looking for further collaboration with entities inside and outside UQU.
5. Open the lab for the public (for commercial workshops and community services).
6. Develop a business model for the lab.

3.3.4 Laboratory

In addition to the DA Laboratory there are other Laboratory in Engineering department are available e.g. geodesy and static Laboratories, Moreover the linguistic Laboratories in foreign linguistic are available.

3.3.5 Library of King Abdullah bin Abdul Aziz

The university library provides services for university students and staff, and for outside customers. In the library area, there is also a study and work place with guidance for students - the Library of King Abdullah bin Abdul Aziz University has about 100 posts, several group work premises, and two computer classrooms. The computer classrooms are available for independent studies whenever they are not reserved for teaching purposes. Library of King Abdullah bin Abdul Aziz University also has a reading room that is open 24/7.

Figure (3.18): Library of King Abdullah bin Abdul Aziz

3.3.6 Saudi Digital Library (SDL)

is the largest academic gathering of information sources in the Arab world, with more than (310،000) scientific reference, covering all academic disciplines, and the continuous updating of the content in this; thus achieving huge accumulation cognitive in the long run. Library has contracted with more than 300 global publishers. The library won the award for the Arab Federation for Libraries and Information 'know' for outstanding projects in the Arab world in 2010.

Library Systems: Management of the library and its indexes is done through its coding system which is considered to be among the modern systems used in the library management.

Library Services: The database includes information about both printed and electronic books as well as the storage information of printed journals. Electronic books can be accessed via a link to

the library catalogue. The library provides its customers with library and information services both on-site and online. Information literacy education for the entire University is also arranged and given by the library personnel. The library is open to faculty staff, students, and general public during terms on workdays. There are computers and workstations available for customers.

3.3.7 Prince Khaled Al-Faisal Chair for the Development of Makkah and the Sacred Sites

His Highness Prince Khalid Al-Faisal Research Chair for the Development of Makkah and the Sacred Site City Chair Vision Academic leadership in the area of upgrading informal areas Chair Mission Supporting upgrading efforts of Makkah to the level of the best developed world cities, through utilizing academic and scientific activities that would contribute in a comprehensive and permanent development to be able to coincide with the global trend in upgrading informal areas Chair Objectives:

- Academic and scientific consolidation of upgrading informal areas
- Transferring academic knowledge and scientific experience to the society and concerned organizations.
- Raising general awareness of the problems and methods of solving in the society
- Raising the administrative and professional awareness among practitioners and concerned organizations.
- Analyzing and comparing the local, regional and international successful experiences in upgrading informal areas.

Cooperating with international scientists and experts in the field.

Chair Activities:

- Conducting collaborative local and international research projects.
- Supporting scientific publications in the area of upgrading informal areas.
- Holding seminars and workshops in cooperation with local and international experts to present international suggestions and ideas.
- Providing academic and scientific consultations to related organizations to support the efforts of upgrading informal areas.
- Preparing and conducting training programs to raise the awareness of upgrading informal areas to the best ways.

Academic Chairs – Umm Al-Qura University

The Research Chairs are university academic programs that aim at enriching human knowledge, developing ideologies and serving the local development issues.

These research are usually funded personally or by institutions. The Research Chairs may assign professionals well known for their scientific excellence, outstanding experience and international reputation. At the same time, a qualified research team marked by its competence and experience in the field of the chair may also be engaged in the program.

Prince Khalid Al-Faisal Research Chair His Highness Prince Khalid Al-Faisal, Prince of Makkah Region, approved the research chair establishment under the name of Prince Khalid Al-Faisal Research Chair for the Development of Makkah and the Sacred Site; which sponsored by the Saudi Bin Laden Company. The prince approval reflects a clear vision about the importance of upgrading Makkah City according to the Ten-Year Plan. This plan reflects his Highness beliefs that academic research is the main and suitable way for developing and managing the informal areas in Makkah City. The

Prince Khaled Research Chair schedule is a five- year program that aims at solving the security issue in informal areas, and is having a social, human, and urban perspective.

The objectives of the research chair are organizing and holding workshops, seminars and lectures to show the informal areas' disadvantages and the advantages of developing such areas. Forum: - Appointing current activities for dealing with informal area in Makkah. - Give development and upgrading authorities the opportunity for getting academic support. - Investigating and analyzing national and international experiences of upgrading and developing informal areas through academic research. - Conducting academic analysis to current socio-economic and environmental issues of informal areas in Makkah. Workshops: The purpose of workshops are: - Conducting gatherings and seminars for concerned parties of upgrading informal areas, - Defining and discussing existing issues of informal areas, and, in turn, - Identifying upgrading requirements and priorities for accomplishment of objectives. Academic Researches: Supporting academic master theses in the field of upgrading informal areas as a part of the Master's Degree Program at the Department of Architecture, Umm Al-Qura University. Competition: The competition provides an advanced opportunity for upgrading informal areas through performing creative urban planning and design alternatives; and supports achievement of the academic chair objectives by improving and maintaining civilized sustainable environment of the informal areas.

3.4 Future Plan for Developing Laboratories in the Architecture Department

Goals	Actions / Initiatives	Expected Outcomes	Timeline
1.Upgrade Existing Facilities	- Modernize current labs with VR/AR, and energy simulation tools. - Implement sustainable infrastructure and routine maintenance	Improved teaching quality, modern learning environment, and alignment with international standards.	Mid-term (2–3 years)
2.Expand Digital Fabrication Capacity	- Acquire new 3D printers, robotic arms, and CNC machines. - Create research zones for sustainable materials and parametric design.	Enhanced design-build projects, hands-on skills development, and innovation in construction methods.	Short to Mid-term (2–3 years)
3.Establish Specialized Research Labs	- Launch Environmental Simulation &Sustainability lab. - Develop Urban Design & Planning Lab (GIS smart cities).	Stronger research output, support for local projects (Makkah)	Mid-term (3–5 years)
4. Promote Collaboration & Community Engagement	Build partnerships with government, industry, and international universities. - Offer community workshops and training programs.	Increased societal impact, stronger institutional reputation, and knowledge transfer.	Continuous
5.Capacity Building & Training	- Provide regular training for faculty, Staff and students. -Encourage interdisciplinary research projects.	Skilled workforce, enhanced Research culture, and innovation-Driven environment.	Continuous