College of Contract Management
United Kingdom

Advanced Diploma in Architecture

Syllabus for Units 1 - 3

Unit 1: Design and Communication Fundamentals

Unit code:	**BA401**
Level 5:	**BTEC Professional**
Credit value:	**20**
Guided learning hours:	**24**

Unit aim

This unit initially introduces learners to architectural design. It also provides them with the knowledge to communicate architectural concepts. Communication is critical throughout the architectural design and documentation process. This unit aims to enable learners to read and represent architectural drawings.

Unit introduction

At first, this unit introduces the learners to the principles of design and architectural composition, which will cultivate in them creative thinking and turn them from a simple viewer into an observer. Learners will gain an insight into architectural standards and the importance of the human body in the design process. The unit aims to develop the perception of space and other elements of architecture.

Further on, this unit deepen into communication skills. It can be considered the primary base for the buildup of the architect's figure. Architects rely on their conventional language of communication to convey their thoughts and their building information to a particular audience. The architect is an important link in the construction business chain. This unit will help learners, as future architects, materialize their thoughts, know how to present their concept to the client, ensuring it is clear and understandable, and provide technical drawings to the engineers. The unit will help learners better understand technical drawing elements by presenting them with a selection of cases related to the topic.

Learners will be provided with a variety of tools and skills, from primary research to various graphical techniques, because the approach to different audiences needs different communication styles, different levels of detailed drawings, and presentation forms. They will learn the two-dimensional presentation of floor plan components, section plane, elevations, etc. They will also explore three-dimensional representation including different orthographic projections and perspectives.

Learning outcomes and assessment crtieria

In order to pass this unit, the evidence that the learner presents for assessment needs to demonstrate that they can meet all the learning outcomes for the unit. The assessment criteria determine the standard required to achieve the unit.

On completion of this unit, a learner should:

Learning outcomes	Assessment criteria
1. Understand and exploit design principles and composition type.	1.1 Identify and apply pricinples of design like rhythm, scale and emphasis 1.2 Understand and use grid, modular grid 1.3 Compose elements 1.4 Built Figures/objects relation
2. Be able to read and interpret technical drawings.	2.1 Understand drawing symbols 2.2 Understand building elements 2.3 Understand section planes 2.4 Understand and use graphic/metric scale
3. Be able to draw simple two-dimensional architectural projects.	3.1 Indetification of material and space 3.2 Understanding space type, room space and circulation space 3.3 Plan and show visible and invisble elements 3.4 Draw floor plans, sections and elevation + shadows 3.5 Understand and draw vertical connections 3.6 Draw furniture plans and room type 3.7 Show dimensions and texts
4. Understand and present 3D models of the objects.	4.1 Orthographic projection of simple model 4.2 Axonometry of a simple object and building 4.3 Perspective of a simple object and building 4.4 Oblique projection of a simple object and building
5. Presentation of concept and project.	5.1 Visual presentation: sketching, diagrams, collage etc. 5.2 Layout interface 5.3 Spoken presentation, addressing the topic

Unit content

1. Understand and exploit design principles and composition type

Design principles: line, shape, space, proportion, rhythm, pattern, emphasis, hierarchy, color, contrast, repetition, proximity, unity etc.

Composition: grid, modular grid, perception, golden ratio, rule of third, symmetry, asymmetry, Gestalt theory, figure and ground, figure relation etc.

2. Be able to read/interpret technical drawings

Building elements: foundation, superstructure, structure, walls, cavity, passage, building envelope, building systems, material, graphic scale, line weight and type, drawings symbols axes, metric scale, tag and text,

Rules and guidelines: space standards, building code, Neufert architect's data etc.

3. Be able to draw two-dimensional simple architectural projects

Spaces: orientation, main spaces, circulation area, space relation, vertical nucleus of connection, room types.

Views: plan, furniture plan, section, elevations, site plan, roof plan, details

4. Understand and present 3D models of the objects

Projection: 2D and 3D space, axes, point, projection planes, projection lines, views, orthographic projection, oblique projection, axonometry, perspective.

Digital models: software, renders, simulation, reality vs virtuality.

5. Presentation of concept and project

Paper size, layout, design board, sketch, collage, diagrams, stamp, texts.

Unit 2: Architectural Technology

Unit code:	**BA402**
Level:	**5**
Credit value:	**20**
Guided learning hours:	**24**

Unit aim

This unit aims to develop a comprehensive understanding of architectural technology, covering key topics from design concepts to practical implementation. Emphasizing collaboration, technical efficiency, and sustainability, the unit prepares learners to contribute effectively in the architectural and construction industry.

Unit introduction

Architectural technology refers to the application of scientific and technological principles to the design and construction of buildings. It involves the use of various tools, methods, and materials to create functional, safe, and aesthetically pleasing architectural structures. Architectural technologists, also known as architectural technicians, play a key role in the architectural and construction industry by translating design concepts into practical, buildable solutions. Architectural technologists or technicians create link between concepts and reality.

Learning outcomes and assessment crtieria

In order to pass this unit, the evidence that the learner presents for assessment needs to demonstrate that they can meet all the learning outcomes for the unit. The assessment criteria determine the standard required to achieve the unit.

On completion of this unit, a learner should:

Learning outcomes	Assessment criteria
1. Understand the role of Architectural Technology and identify effective collaboration with architects, contractors, engineers, and other professionals.	1.1 Define architectural technology and articulate the distinct roles of architects and architectural technologists 1.2 Demonstrate the ability to communicate technical information clearly to diverse stakeholder in the construction process 1.3 Understand the importance of project planning, organisation, and coordination using BIM software and common tools and apps
2. Gain analytical and critical thinking skills to address design challenges of the diversity of Building Typologies driven by climate, functionality, and sustainable design principles, environmental impacts and local regulations.	2.1 Be ready to apply critical thinking skills to adeptly provide solutions for the design challenges, construction issues, and unexpected problems throughout the project lifecycle 2.2 Apply knowledge of structural diversity in designing contextually appropriate and sustainable architectural solutions. 2.3 Incorporate sustainability principles into architectural designs and construction details 3.4 Identify hazards and mitigate risks to comply health, safety and welfare legislations
3. Know the importance of project planning, organization, and coordination using BIM software and common tools and apps.	3.1 Apply critical considerations for CAD 3D utilization in establishing a comprehensive BIM environment, explain Levels of Development 3.2 Analyze automation tools and parametric design approaches to automate repetitive tasks and quickly generate variations of a design 3.3 Be able to provide typical details and templates for efficient Architectural Engineering 3.4 Explain the importance of the precision in building and site surveys, including laser scanning and point cloud integration

4. Develop the ability to Identify client and user requirements. Value project management and workflow optimisation.	4.1 Demonstrate the ability to identify and understand client requirements and implement relevant solutions 4.2 Explain the distinctions between architects and architectural technologists, emphasising the unique contributions of each role 4.3 Be able to create a comprehensive project plan, including timelines and resource allocation
5. Develop the ability to Identify client and user requirements. Value project management and workflow optimisation.	5.1 Demonstrate proficiency in creating technically efficient designs based on established templates and standardized details. 5.2 Analyze automation tools and parametric design approaches to automate repetitive tasks and quickly generate variations of a design.
6. Case Studies	

Unit content

1. Unvieling Architectural Technology: From Blueprint to Construction, Differentiating Architect from Architectural Technologist

2. Clear Communication to Convey Technical Information Clearly to Diverse Stakeholders

Effective collaboration with architects, contractors, engineers, and other professionals involved in the construction process.

3. Planning and Organisation. Team Communication and BIM Management

Planning and organizing tasks, ensuring projects are completed on time and within budget. Coordination and management of multiple aspects of a project, including schedules, budgets, and resources.

4. Navigating Challenges: Problem Solving, Modern Solutions, and Continuous Exploration

Analytical and critical thinking skills to address design challenges, construction issues, and unexpected problems during the project lifecycle. Willingness to stay updated on industry trends, new technologies, and advancements in architectural practices. Commitment to ongoing professional development through workshops, training, and educational opportunities.

5. Structural Diversity. Exploring Local Building Typologies Driven by Climate, Functionality, and Sustainable Design Principles

6. The Impact of Architectural Technologists on Sustainability

Shaping a Greener Future, Well-being, and Environmentally Conscious Design through Thoughtfully Specified Materials and Construction Details. Critical role to identify hazards and mitigate risks to comply health, safety and welfare legislations.

7. Building Information Modelling (BIM)

Critical Considerations for Effective CAD 3D Utilization in Establishing a Comprehensive BIM Environment, Ensuring Information Integration Beyond Mere 3D Modeling. Fostering collaboration and coordination among project stakeholders. Levels of Development.

8. Enhancing BIM Mastery

Exploring Advanced Plugins and AI Tools to Optimize Efficiency, Parametric Design and Automation in the BIM Environment.

9. Efficiency in Technical Design

Exploring Typical Solutions, Standardized Details, and Templates for Streamlined and Effective Architectural Engineering.

10. Precision in Practice

Building and Site Surveys, Laser Scanning, and Point Cloud Integration for Seamless Implementation in the BIM Environment

11. Workshop

Role-Playing: Architect and Architecural Technologist vs Client:

1. Objective: Learn to identify client and user requirements. Clarify the distinctions between architects and architectural technologists, emphasizing the unique contributions of each role.
2. Activities:
   - Presenting hypothetical architectural project scenarios with varying client needs and expectations.
   - Conduct a role-playing session where students take on the roles of architects and architectural technologists.
   - Task each group with identifying and documenting the client's explicit and implicit requirements.
   - Students articulate their perspectives, responsibilities, and interactions within the project team.
   - Encourage discussion on how these requirements may impact the design and technical aspects of the project.

Project Planning and BIM Management:

1. Objective: Develop students' skills in project planning, organization, and coordination using Building Information Modeling (BIM).
2. Activities:
   - Introducuce a mock architectural project and guide students in creating a comprehensive project plan, including timelines and resource allocation.
   - Explore the collaborative features of BIM through a live demonstration or hands-on exercises.
   - Emphasize the role of architectural technologists in managing BIM processes for effective teamwork.

12. Efficiency in Technical Design Workshop

1. Objective: Explore typical solutions, standardized details, and templates for efficient technical design in architecture.
2. Activities:
   - Group discussion on the benefits of standardized design solutions.
   - Hands-on exercise: Compiling a strategic set of actions to optimize the project lifecycle for maximal efficiency in technical design.

Unit 3: Architectural Design 1 (From Investigation to Proposal)

Unit code:	**BA403**
Level:	**5**
Credit value:	
Guided learning hours:	**24**

Unit aim

This unit is designed for learners with Level 3 in an Architecture course or similar qualification, or with a minimum of 2-year experience as an architecture assistant.
It provides the learner with a summary of the main features of the Architectural Design module, and the intended learning outcomes that the learner might achieve and demonstrate.

Unit introduction

The unit aims to provide learners with the opportunity to achieve the necessary fundamental knowledge and practical skills of investigating the elements that determine the architectural design process, leading to adequate proposals. Learners will develop their contextual and observational understanding and skills that are important for good and innovative architectural design.

This unit encourages learners to develop their investigation abilities evolving to a critical and problem-solving thinking, analysing and evaluating precedent architectural design projects through the process facilitated by lectures, practical work and the use of case studies and research.

It stimulates learners' curiosity, experimentation, interests, attitudes, ambitions, and research abilities, and communicates original architectural design solutions. It helps them in the form-finding process, exploring new possibilities, using the most recent means of our time, taking into account the complexity of qualitative and quantitative aspects that make up a building.

Learning outcomes and assessment crtieria

In order to pass this unit, the evidence that the learner presents for assessment needs to demonstrate that they can meet all the learning outcomes for the unit. The assessment criteria determine the standard required to achieve the unit.

On completion of this unit, a learner should:

Learning outcomes	Assessment criteria
1. Understand the need for investigation to be able to generate an architectural design proposal.	1.1 Present a portfolio with hand sketches and photographs resulting from investigation. Sources of investigation.
2. Be able to convert the results of the investigation process into architectural design ideas.	2.1 Present a portfolio of ideas extracted from the investigation portfolio. Sketches. 2.2 Explain the process of developing the investigation results into ideas.
3. Be able to choose good quality architectural design ideas to generate original proposals.	3.1 Present variants of proposals resulted from the portfolio of ideas.
4. Be able to generate architectural design proposals.	4.1 Presentation of the evolution from investigation to proposal

Unit content

1. Understand the need for investigation to be able to generate an architectural design proposal

Architectural design is continuously shaped by its social, cultural, and physical context. The client is always diverse, with different requirements, and distinct expectations. Listening to the client's needs is the most important aspect of the design process. The client's vision for the project is the first and most significant step of the investigation. This is an information gathering phase that will be the foundation for the design stages to follow.

Sources of investigation: history, theories of architecture, art, previous architectural design projects, building regulations, data related to local zoning or restrictions, budgets to follow etc.
Various methods of investigation may lead to the autonomy and originality of the architectural object.

2. Be able to convert the results of the investigation process into architectural design ideas

Investigation provides the opportunity to develop imagination and experimentation through the knowledge gained by studying and analysing the previous experiences of other architects, artists and scientists.

This leads to a better understanding of the principles of architectural design, and its features, and which cater for the occupants' comfort and safety.
From this point starts the need of exploring design concepts, testing options, and getting ideas of look and feel. Different representation techniques and presentation methods can also stimulate the generation of varied and ingenious ideas.

3. Be able to choose good quality architectural design ideas to generate original proposals

Ideas evolve into a schematic design and can be developed by drawings, hand sketches, 3D models etc. Various ideas can influence many aspects of the project as: volume, proportions, interior and exterior elements, finishes, materials, textures, façade design etc.

The ideas are presented to the client in a manner that helps him understand the shape, size, and relationship of spaces with each other etc. The client's feedback is the most important aspect that helps to choose the right concept for the project.

3. Be able to generate architectural design proposals

The architectural design proposal is a stage in the design process that starts with... the client's desires. Architectural design proposals are basically generated by the initial research and collection of information, ideas and principles of the design process. This leads to a functional and aesthetically design. Most important, that meets the needs of users and surrounding environment. Here comes the relationship people-buildings-environment which is always to be kept in mind.

Outline learning plan

The outline learning plan has been included in this unit as guidance and can be used in conjunction with the programme of suggested assignments.

The outline learning plan uses a structure based on the learners own spatial history and drawn communication ability. Develops their research skills towards finding solutions for proposals.

Topic and suggested assignments/activities and/assessment
Introduction to the unit and programme of learning
Tutor-led discussion - Architectural design investigation - exploring history of architecture
Tutor-led discussion — Architecture as a system of research - exploring theories of architecture
Tutor-led discussion - Architectural design investigation - exploring precedent architectural design projects
Tutor-led discussion — Arguments for a deep investigation
Tutor-led discussion - Pre-design stage - Strategic definition
Tutor-led discussion - Pre-design stage - Preparation and Brief - *Learner research* - **Portfolio of investigation**
Tutor-led discussion - Design stage — Concept design - *Learner research* - **Portfolio of ideas**
Tutor-led discussion - Design stage — Developed design
Learner research — **Variants of proposals**
Review of the unit
Learner activity — Evolution from investigation to design proposal - **Assignment: Design proposal**

Assessment

Learners can use their own workplaces as a base for much of the assessment for this unit.

For AC 1.1. learners need to present a portfolio with hand sketches and photographs resulting from their investigation process. They may also use examples from their own experience.

For AC 2.1. learners need to present a portfolio of ideas extracted from the investigation portfolio.

For AC 2.2. they need to explain the process of developing the investigation results into architectural design ideas. They may use schematics and explanatory diagrams, as well as examples from their own experience.

For AC 3.1 learners need to present variants of proposals resulted from the portfolio of ideas. They may use as well as examples from their own experience.

For AC 4.1. learners need to demonstrate how did they went through the design process from investigation through to proposal. They may use examples from their own experience.

Programme of suggested assignments

Assessment criteria covered	Assignment title	Scenario	Assessment method
AC 1.1	The need for investigation.	Learners analyse the impact of investigation on the next step of architectural design, generating design ideas.	Portfolio
AC 2.1, 2.2	Convert the results of the investigation process into architectural design ideas.	Learners get knowledge about the process of converting the investigation results into architectural design ideas.	Portfolio
AC 3.1	Choose good quality architectural design ideas to generate original proposals.	Learners review the architectural design ideas and choose an option for a proposal considering a potential client requirements.	Sketches
AC 4.1	Generate architectural design proposals.	Learners develop the architectural design proposal so that it is fully spatially coordinated.	Drawings

Essential resources

There are no essential resources required for this unit.

Indicative resource materials

Textbooks

Geoffrey H Baker - *Design Strategies in Architecture*

Marja Sarvimaki - *Case Study Strategies for Architects and Designers*

Linda Goat. David Wang - *Architectural Research Methods* (2nd Edition)

Journals

Linda Goat, David Wang - *Architectural Research Methods* (NEXUS NETWORK Journal - Vol. 6, No. 1, 2004)

Websites

Royal Institute of British Architects - https://www.architecture.com/knowledge-and-resources/resources-landing-page/riba-plan-of-work#available-resources