NATIONAL UNIVERSITY OF SCIENCE AND TECHNOLOGY
FACULTY OF THE BUILT ENVIRONMENT

DEPARTMENT OF ARCHITECTURE
BACHELOR OF ARCHITECTURAL STUDIES (HONOURS) DEGREE
2013 - 2014 ACADEMIC YEAR
PART II - FIRST SEMESTER SUPPLEMENTARY EXAMINATIONS – JULY 2014
AAR 2103 – COMPUTER AIDED ARCHITECTURAL DESIGN 1

Instructions ***Duration: 4 Hours***

Answer ALL questions
Question 1 to be completed in the answer book provided, while Question 2 will be completed on the PC.
Make sure that you save your work at least every 5 minute interval.
Do not leave your PC/Workstation until your drawing has been collected on a flash disk by the Invigilator

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QUESTION 1

Using appropriate examples, discuss how the ICT Revolution has impacted on Architectural Design and execution of Architectural Projects (10)

QUESTION 2

The exercise consists of an accurate design of a three bed roomed house. The general floor layout of the house is saved on your computer as an AutoCAD drawing (Drawing 1.dwg). The windows and door codes are from the standard Monarch catalogue and along with the furniture, are given in AutoCAD blocks in your drawing.

STEP 1:

a. Open the drawings on your computer Desktop and save it under the name [STUDENT NUMBER] CAAD01/2013.

b. Set the Layers, Text Styles, Line types, Dimensions as you may need for reproducing the given drawing

STEP 2:

a. Redraw the FLOOR PLAN with all dimensions, hatching and relevant notes as shown on the attached Appendix A. **[40]**

STEP 3:

a. Design and draw the Section A-A, and the East Elevation & South Elevation that are commensurate with floor plan, with all necessary notes and windows as shown in Appendix A.
   Section AA [20]
   East Elevation & South Elevation [20]

b. Write notes with TEXT STYLE of your choice. [10]

QUESTION 1 MODEL ANSWER

ICT Revolution refers to the global rapid and mass development in the field of computers and computer based technologies as employed in virtually all facets of human life and activities which occurred in the 1990s and continues in this day going forward.
This has been characterized by the growth and densification of the Internet and the use of the mobile phone.
All these allowing networking and teamwork between geographically spread team members, but sharing a "centralized" database, with the team members having varied levels of rights to the shared work. A computer based Architectural project can be shared by members of one design team, who do not necessarily need to be within the same geographical location, but just need to be linked via a Local Area Network, or a Wireless Local Area Network or the Internet etc.

In Architecture; this has seen the development of computer drafting softwares such as AutoCAD among others, this saw the gradual phasing out of the traditional pencils, drawing pens, stencils, tape measures and drawing boards as principal elements in the drawing office. These have largely been replaced by digital cameras, electronic range finders, scanners, plotters, printers and 3D printers.

The Architect and designer have retained their creative design role, but the tools of expression continues to change. Some practicing Architects and theorists argue in favour of the traditional architectural environment, that these computer softwares are a way of impairing the designer, because the conceptualization and visualisation skills are increasingly being handed over to the machines. These argue that, the Architect must continue to sketch using the pencil and the sketch pad primarily. The debate continues.
One thing which we can never subtract from the future of the profession are the ICTs. They are here to stay. As a tool in an artisan's hand, the Architect must position themselves most proficiently, and become adept with the tool, in order to bring out the best designs they can.
Softwares with capacity to generate perspectives to continue to take a more dominant role as a tool of choice in creating presentation drawings to clients.
Other softwares have been and to continue to be developed, with a capacity and flexibility to assist the Architect with more design options and power for visualisation and resolution of more complex architectural forms than have been seen traditionally. Examples of such softwares include ArchiCAD, CATIA, AutoCAD Architecture.
CATIA traditionally used in the aeronautical design, was incorporated by Architect Frank O' Gehry in designing and resolving the complicated eccentric forms of his buildings.
Working on a computer based Architectural project allows the Architect to explore more design options but with less physical exertion, as compared with the traditional used of the drawing board and the pencil.

The use of these computer hard-wares and softwares requires a high initial capital input for their acquisition and maintenance, but they bring in efficiency in the conceptualization of designs, resolution of the designs as well as in Building Information Management. Building Information Management software allows for better coordinated teamwork in design and draft-work, irrespective of geographical distance.

Computer environments are vulnerable to virus attacks; hacking and piracy thus need various forms of firewalling and back-ups. A Zaha Hadid design project recently initiated in China recently, was copied and built to completion by a local Chinese architectural firm for another local client, ahead of the original design much to the chagrin of the Zaha Hadid's original client!
Unlike the traditional architectural offices, todays have to employ or to contract the services of computer and software specialists in order to keep their systems up to speed. This means more financial allocations towards such an infrastructure for the smooth running of the office.

Other professionals in the built environment such as Planners; Urban Designers; Quantity Surveyors; Engineers and Project Managers are increasingly acquainting themselves with AutoCAD, as it fast becomes a "universal currency" for communicating project information in the field.