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EXERCISE 1: Classification of Data

Folkwangschule für Gestaltung
Department Architecture
Lecturer: Ralph Johannes
Subject Area: Model of Architectural Design Education (MADE)

Sought after
Who lives in the yellow, blue, red, white and green house?

Available
On street X there are five houses of different colours, the residents are of different nationalities, keep different pets, prefer to drink different drinks and have different smoking habits.
The following details are already known:
a) The Englishman lives in the red house.
b) The dog belongs to the Spaniard.
c) Coffee is drunk in the green house.
d) The Ukranian man drinks tea.
e) The green house stands, from your perspective – directly to the right of the white house.
f) The smoker keeps rabbits.
g) The smoker lives in the yellow house.
h) The residents of the middle house drink milk.
i) The Norwegian lives in the first house to the left.
j) The pipe smoker lives next door to the man with the fox.
k) The smoker lives in the house next to the man with the horse.
l) The cheroot smoker drinks lemonade.
m) The Japanese man smokes cigarillos.
n) The Norwegian man lives next door to the blue house.

**Required**
1. In the solution, the following related attributes must be found:
   1.1 House colour
   1.2 Nationality
   1.3 Pet
   1.4 Drink
   1.5 Tobacco type
2. Graphic demonstration:
   Ink on transparent paper A 4
   Inscription stencil.

**Exercise 2: Specification of Functional Data**

Folkwangschule für Gestaltung
Department Architecture
Lecturer: Ralph Johannes
Subject Area: Model of Architectural Design Education (MADE)

**Sought after:**
A catalogue of activities

**Available**

1. **Following families for selection:**

   1.1 **Family X (with one child)**
   Mr X = Skilled worker on shift basis. Leisure: Model aeroplane building.
   Mrs X = Housewife, loves flowers and foliage plants. Leisure: Sewing.
   Child X = one-year-old son, very lively.

   1.2 **Family Y (with three children)**
   Mr Y = self-employed business man, eats lunch at home and has a midday nap
   Often works from home. Leisure: Undisturbed televisional viewing.
   Mrs Y = Housewife, music teacher by profession, provide lessons in her apartment.
   Leisure: Piano playing, reading and inviting guests, who are not liked by her husband
   Child Y1 = 17-year-old son, trainee in an architect’s office. Leisure: Photography, listening to
   records.
   Child Y2 = 14-year-old daughter, in senior school. Leisure: Playing guitar and reading
   Child Y3 = 10-year-old son, in senior school. Leisure: Model trains.

   1.3 **Family Z (Retired family)**
   Mr Z = Pensioner, remains very spry. Leisure: Working in the garden, collecting/repairing old
   watches.
   Mrs Z = Housewife, physically impaired, must use a wheelchair, would like to sleep
   separately.
   Child Zi = with a 2-year-old daughter, unmarried, lives and works in the neighbourhood;
   frequently visits her parents over the weekend.

2. **Following living spaces:**
   2.1 Communal zone
   2.2 Individual zone
   2.3 Multi-purpose zone
2.4 Sanitary zone
2.5 Free space zone

3. **Tables 1 and 2**

**Required**
1. A clearly ordered, well structured setup of all activities that can be carried out in all living zones by all families and their relatives respectively.
2. Demonstration:
Ink on transparent paper A 4
Inscription stencil.

**Exercise 3:** Coordination of functional data

Folkwangschule für Gestaltung
Department Architecture
Lecturer: Ralph Johannes
Subject Area: Model of Architectural Design Education (MADE)

**Sought after**
An organisational matrix of activities and devices.

**Available**
1. The chosen family of task 1
2. The activities catalogue of task 1
3. Following obligatory goals:
   3.1 DIN 18011, Storage areas, distances and areas of movement in the construction, March 1967.
   3.2 DIN 18022, Kitchen, bathroom, WC, utility room; planning basis for construction of the apartment; November 1967.
   3.3 DIN 18025, Apartment for severely disabled, planning basics; design, August 1969.
4. Table 3.

**Required**
1. The recommended and required fitting- and furnishing items of the given apartment construction must be ordered in terms of the relative main- and ancillary activities, using a matrix.
2. Demonstration:
Ink on transparent paper A 4
Inscription stencil

**Exercise 4:** Organisation of ergonomic data

Folkwangschule für Gestaltung
Department Architecture
Lecturer: Ralph Johannes
Subject Area: Model of Architectural Design Education (MADE)

**Sought after**
The spatial requirements of the functional areas.
Available
1. The selected family of task 1
2. The organisational matrix of task 1
3. Following obligatory goals:
   3.1 DIN 18011 (March 1967);
   3.2 DIN 18022 (November 1967);
   3.3 DIN 18025 (Design, August 1969);
4. Table 4.

Required
1. The correct functional setting and order of the furnishings with reference to the user
2. Demonstration:
   Ink on transparent paper A 4
   Inscription stencil

Exercise 5: Completion of a labyrinth
Folkwangschule für Gestaltung
Department Architecture
Lecturer: Ralph Johannes
Subject Area: Model of Architectural Design Education (MADE)

Available
The labyrinth of the English mathematician Rouse Ball.

Sought after
The way from A to B must be found.

Required
Graphic demonstration.

Literary references: The theory of graphs
Lietzmann, Walther:
Anschauliche Topologie
München 1953
Barr, Stephen:
Experiments in Topology
New York 1964
Wolff, L.:
Netzplantechnik (CPM) (= Lehrprogramm zum Selbststudium)
Köln 1967
Schriftenreihe“IBM Fachbibliothek“
IBM Form 78101
Kattwinkel, W.:
Über 2 Anwendungsmöglichkeiten von Netzwerken mit gerichteten Teilstrecken(directed graphs)
IBM Form 81507
Wielath, H.:
Planung eines Kraftwerkes mit PERT
Exercise 6: Setting the order of the rooms

Folkwangschule für Gestaltung
Department Architecture
Lecturer: Ralph Johannes
Subject Area: Model of Architectural Design Education (MADE)

Sought after
Graphic demonstration

Available
Following rooms:
F = Free space zone (e.g. garden, street)
V = Connecting room (e.g. hallway, vestibule)
W = Living room
E = Dining room
K = Kitchen
H = Utility room
B = Bathroom
S = Bedroom

Required
1. Following room order:
   (VK)
   (VB)
   (VS)
   (VE)
   (VW)
   (EK)
   (KH)
   (SB)
   (VF)
   (WF)
   (WE)
   /SF/
   /EF/
   /KF/
   /WK/
   /KB/
   Round brackets (XY) symbolise rooms connected by a door; forward-slash brackets symbolise neighbouring rooms without a connecting door.
2. Spatial connection matrix
3. Graphic demonstration:
   Ink on transparent paper A4
   Inscription stencil

Exercise 8: Furnishing and equipping of rooms

Folkwangschule für Gestaltung
Department Architecture
Lecturer: Ralph Johannes
Subject Area: Model of Architectural Design Education (MADE)
Sought after
The purpose-guided furnishing and function-oriented equipping of communal-, individual-, purpose- and sanitary rooms.

Available
1. Following room grouping:
   1.1 Room group, communal rooms’
      1.1.1 Living rooms
      1.1.2 Living rooms with a dining area (4-8 persons)
      1.2 Room group, individual rooms’
      1.2.1 Master bedroom with crib
      1.2.2 Master bedroom without crib
      1.2.3 Children’s bedrooms (1 Bed)
      1.2.4 Children’s bedrooms (2 Beds)
      1.3 Room groups’ communal- and individual rooms’
      1.3.1 Living-, bed- and dining rooms
      1.3.2 Living- and bedrooms
      1.4 Room groups, working rooms’
      1.4.1 Preparatory kitchens (left- and right-handed)
      1.4.2 Kitchen with standing eating area (left- and right-handed)
      1.4.3 Kitchen with dining area (left- and right-handed)
      1.4.4 Cooking area (left- and right-handed)
      1.4.5 Working room (wet)
      1.4.6 Working room (dry)
      1.5 Room groups, sanitary rooms’
      1.5.1 Bathrooms
      1.5.2 Bathrooms and WC
      1.5.3 Bathrooms and washing machine
      1.5.4 Bathroom, WC and washing machine
      1.5.5 Bathroom with shower
      1.5.6 Bathroom, WC and shower
      1.5.7 Showing room and WC
      1.5.8 WC
      1.6 Room groups, recreational rooms’
         1.6.1 Sauna
         1.6.2 Sports room

2. Following construction standards and guidelines:
   2.1 DIN 18011 (1967)
   2.2 DIN 18022 (1967)
   2.3 AMK – notes (1966)
   2.4 Basic principles for construction work

3. A modern grid of 3 scale (= 30 cm)

Required
1. The demands and recommendations of the provided construction standards and guidelines are to be fulfilled.
2. A spatial usage scheme on a scale 1:100 with all modular floor space of 9 M (= 90 cm) to 60 M (= 600 cm), that are created through the addition of large module of 3 M (= 30 cm);
2.1. The positioning of the windows and doors must be shown graphically.

2.2 Graphic demonstration:
Ink on transparent paper A 1
Inscription stencil
AMK = Arbeitsgemeinschaft Die moderne Küche, Darmstadt. „Richtlinien für Küchen“ / Guidelines for kitchens

Exercise 11: Spatial arrangement of a residential building
Folkwangschule für Gestaltung
Department Architecture
Lecturer: Ralph Johannes
Subject Area: Model of Architectural Design Education (MADE)

Sought after
The outline of a building

Available
Following rooms:
A with 18 m² (+/- 10 %) surface area
B 16 m²
C 14 m²
D 12 m²
E 8 m²
F 8 m²
G 8 m²
H 6 m²
I 5 m²
J 3 m³
K 2 m²
L 3 m²
V max. 10 m²

Required:
1. Following spatial relationships:
1.1 The building entrance and the rooms B, C, D, E, F, G, H, I, J, K, L must have a direct connection to the room V (= vestibule, hallway);
1.2 A direct connection between the rooms B and G, G and H, A and B;
1.2 The rooms C, D, E, F should be as far removed as possible from A, B, G, H, K, L, M;
1.4 The rooms C, D, E, F should be situated next to one another;
1.5 The rooms I and J should be near to rooms C, D, E, F;
1.6 The rooms I and J should be above the rooms G and H;
1.7 The rooms B and G should be situated in the centre of the building
1.8 The room K should be located at the building entrance;
1.9 The room L should be situated near to G.
2. A room order graphic.
3. The rooms A, B, C, D, E, F, G, H must have natural light.
4. The rooms I, J, K, L may have artificial air and light.
5. Graphic demonstration:
Ink on transparent paper A 4
Inscription stencil
Scale 1 : 100
Exercise 12: Constructive arrangement of a residential building

Folkwangschule für Gestaltung
Department Architecture
Lecturer: Ralph Johannes
Subject Area: Model of Architectural Design Education (MADE)

Sought after
A pre-fabricated building

Available
1. The room programme in task 9 with the obligatory room relationships
2. A maximum of five supporting pre-fabricated elements of various sizes.

Required
1. A building that consists of a maximum of five supporting wall and ceiling pre-fabricated elements of different sizes.
2. The dimensions of the pre-fabricated elements may be decided individually.
3. The board thickness should be 20 cm.
4. OK-floor of the ground floor should be situated 3,00 m above NN-terrain
5. A catalogue of building elements.
6. Graphic Demonstration
   Ink on transparent paper A 4
   Inscription stencil
   Scale 1 : 100

Exercise 13: Modular arrangement of a residential building

Folkwangschule für Gestaltung
Department Architecture
Lecturer: Ralph Johannes
Subject Area: Model of Architectural Design Education (MADE)

Sought after
A modular reference system for a building.

Available
1. The room programme of task 9 with the obligatory room relationships
2. The catalogue of building elements of task 10.
3. A modular framework that is formed using a multiplex of the large module of 6 M (= 60 cm).

Required
1. A spatial framework arrangement within which the relationships and the positioning of the building components can be established, with the help of threads, wires and beams, points and surfaces.
   Scale 1 : 20.
2. The supporting pre-fabricated elements are to be labelled using different colours, in contrast to the other building elements.
3. Graphic demonstration:
   Ink on transparent paper A 4
   Inscription stencil
   Scale 1 : 100