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COMPUTER AIDED DESIGN

Duration of the course

2 TERMS (obligatory)

Student should complete 2 terms during first 4 terms of the studies at University and

1 TERM (facultative, chosen by a student)

Amount of hours per term

30 hours (2x15)

Amount of students per group

Work groups, 10 student, 1 tutor per group

Main tutor

PhD of arch. Otmar Vogt

Aims of the course

The subject aims to teach CAD systems usage, by means of AutoCAD12.

It is conducted in two obligatory parts and one facultative, chosen by a student.

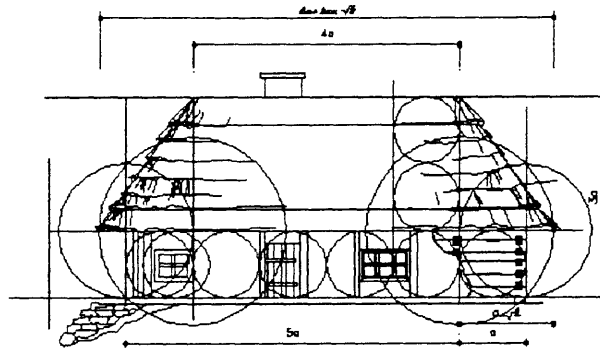
The first part concerns 2D drawings (description of specific architectural objects), made on A3 sheet prepared in AutoCAD by a student.

The second part introduces 3D record of objects. Objects are given to students in the form of listing, photographic or geodetic documentation and plans. Thus, before constructing a computer model students must prepare the documentation, getting wanted data. This approach results in not allowing first-term students to take up the subject. It is dictated by that fact, that continuation of the learning on the second term would exceed their knowledge of descriptive geometry so they could not satisfactorily complete second part of the course.

It should be mentioned that students work on specific architectural objects during both terms of the course, and each participant completes individual portfolio. Thus, every student works on his/her own with assistance of the tutor.

The third part of Computer Aided Design course (the facultative one) is addressed to fourth- and fifth-year students or younger ones who, having completed first two terms of the course, want to pick the course as one of the facultative subjects. The classes introduce teamwork, aiming to develop together relevant strategy of solving the problem.

At the end it can be stated, that all parts of the course are very popular among students of Faculty of Architecture.



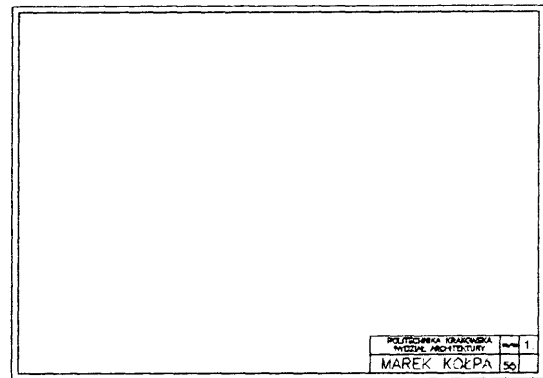
Badanie proporcji tzw. chałupy sandomierskiej,
pochodzącej ze wsi Rzuchów (nieдалeko Opatowa)

SYLLABUS

1. Sheet

During the first classes students are introduced to work in the net. They learn to use accounts, which are set up for each of them. They are informed about the rules binding them during classes in SPGWIGI and receive a syllabus.

Then they are given basic information about AutoCAD and prepare a sheet (A3), which is henceforth used in all the drawings.



2. Napkin

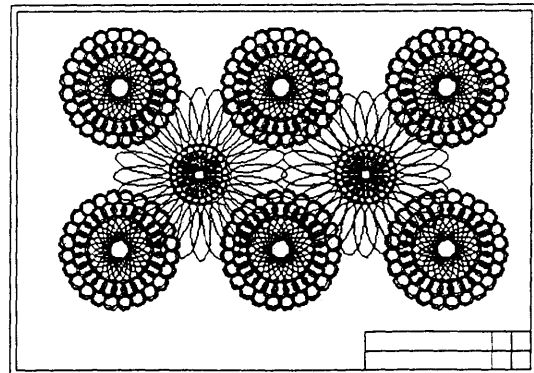
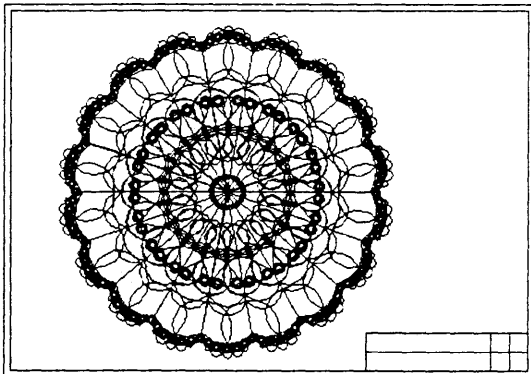
During the next classes, using the prepared sheet, students learn instructions needed for further work. Through exercises with

DRAW/LINE, CIRCLE, ARC, ELLIPSE, POLYGON, RECTANGLE...

MODIFY/ ERASE, TRIM, MOVE, SCALE, ROTATE, MODIFY...

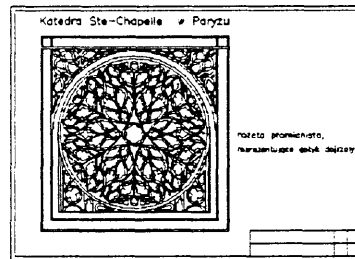
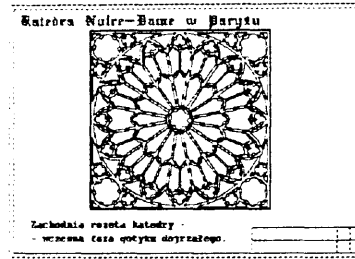
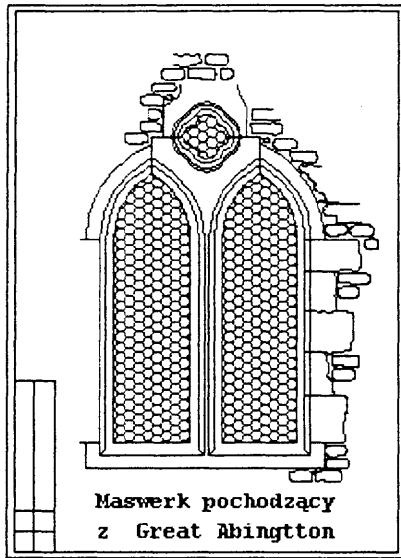
CONSTRUCTION/ ARRAY, COPY, MIRROR

Commands they create a drawing resembling a napkin



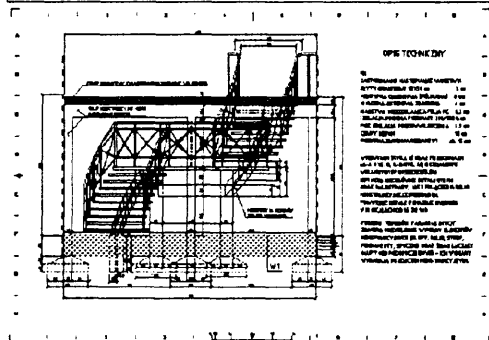
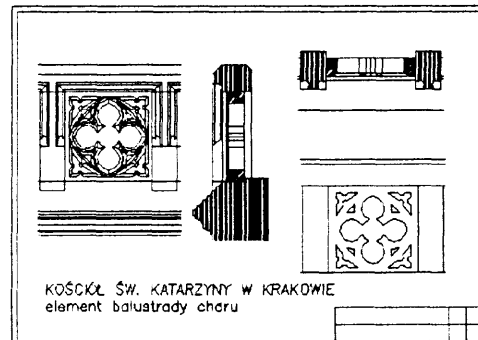
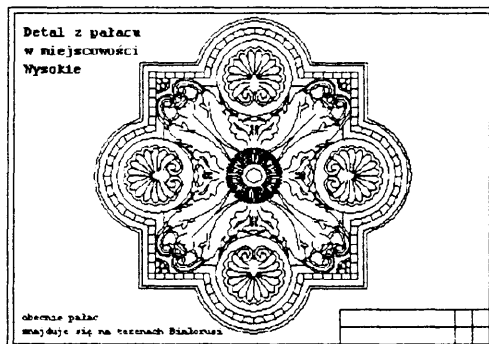
3. Gothic window: pointed arch or rosette

From that task on students work on given architectural objects. Each student decides about the building from which to take a window.



4. Architectural detail

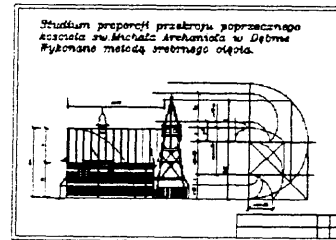
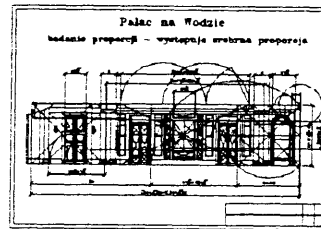
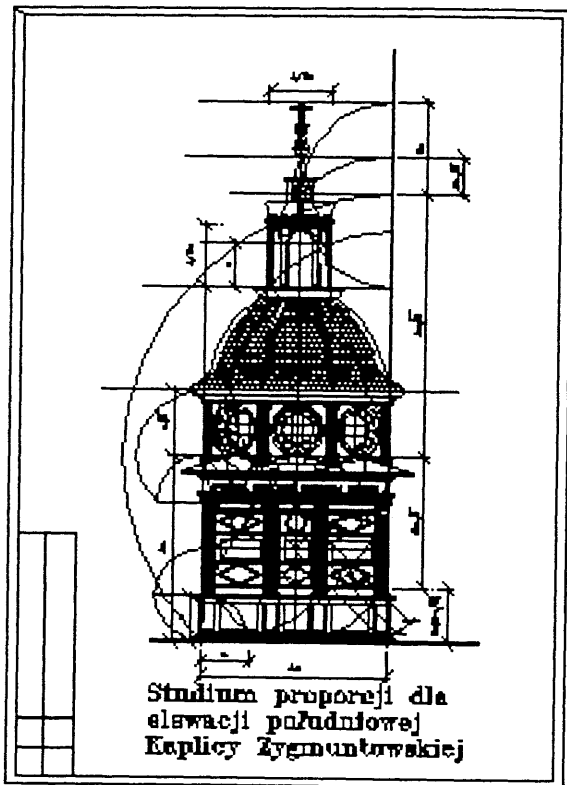
Students decide on their own about the kind and source of the elaborated detail. They are often fragments of Greek and Roman temples, Renaissance, Baroque and Classical windows and porches, fragments of lawn architecture, fountains, however they can also technological details - as a fragment of rafter trimming etc. Often students work on the detail they are given in History of Architecture Department. After completing the work (using B2 format demanded there), the detail is plotted.



5. Dimensioning of an architectural or technical detail

Student should prepare a dimensioning of one of following:

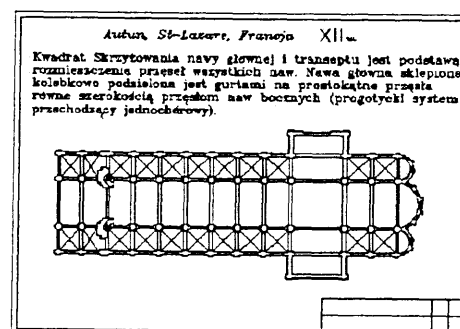
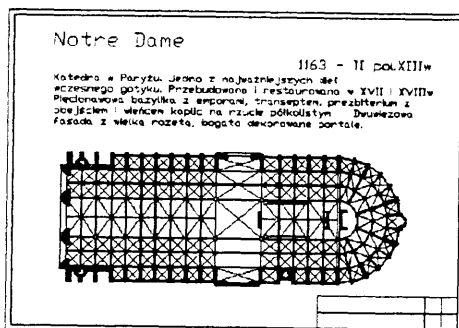
- 1* dimensioning of the gothic window (drawn earlier)
- 2* dimensioning of the architectural detail (drawn earlier)
- 3* drawing any of technical details and dimensioning it.



6. Plan of a given architectural object

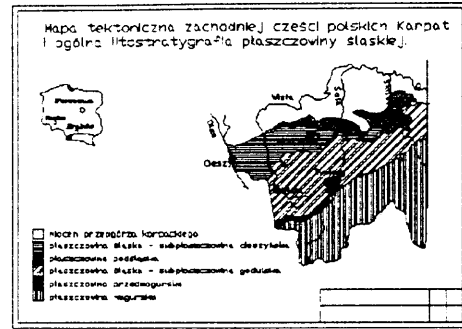
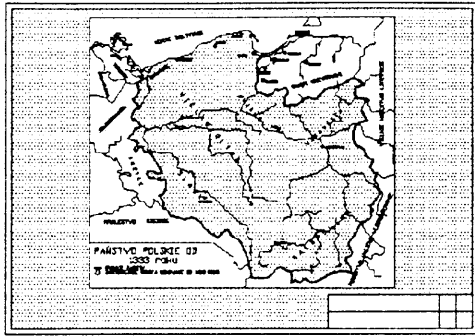
A student has three possibilities:

- 1* drawing on (A3 format) plan of chosen flat or single-family house in 1:50 scale - technical drawing with all dimensions, materials, descriptions
- 2* drawing on (A3 format) plan of chosen flat or single-family house in 1:100 scale - design drawing, with furniture and equipment as well as surroundings arrangement (if a ground plan)
- 3* drawing a plan of a historical object: church, temple, and villa... describing it (with a short history and characteristics of an object)



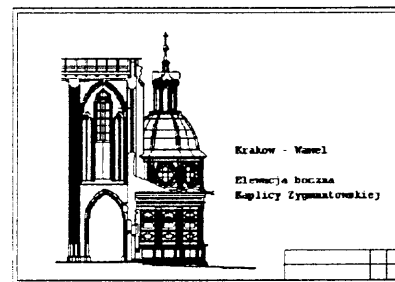
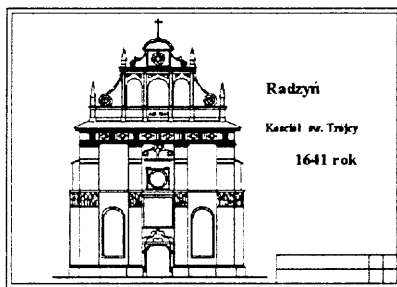
7. Map

Students work using layers and prepare a map of specific area (though only a 2D one) with some additional information.



8. Elevations of a given architectural object

This task is a kind of summary of the work throughout the term. Students draw elevations of given objects using listing and cataloguing drawings.



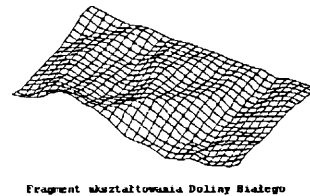
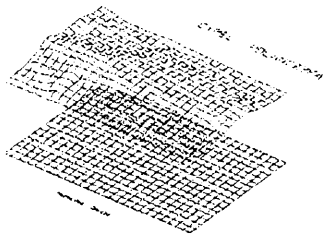
PART TWO

1. Terrain

Students are given specific altitude plan of an area. Different ways of making CAD drawing are explained. Students decide which of them they use.

At the end student presents completed map on the screen, divided into three or more views:

- 1* plan with a short description
- 2* two profiles
- 3* one or two axonometric views.

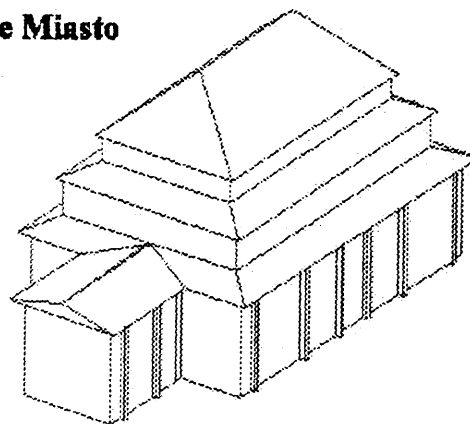


2. Roof

Students choose an object by chance and receive existing documentation of no longer existing Polish wooden synagogues.

Documentation varies depending on object, but mainly consists of photographs. Polish wooden synagogues had beautiful, often multi-storeyed roofs. Student must restore silhouette of the synagogue or at least its roof (often a whole array of roofs), then prepare a 3D model of it. To enable completing the exercise during single classes, there is a lecture concerning basic rules of central projection and perspective as well as rules of restitution of an object from photography.

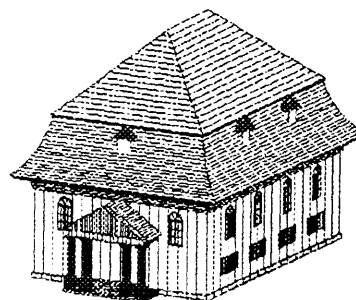
Nowe Miasto



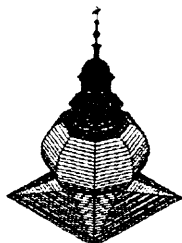
Bryła drewnianej bóżnicy w miejscowości Kurnik



Bryła budynku żydowskiej, drewnianej bóżnicy.



3. Helmet



Hełm drewnianej cerkwi w Boguszy

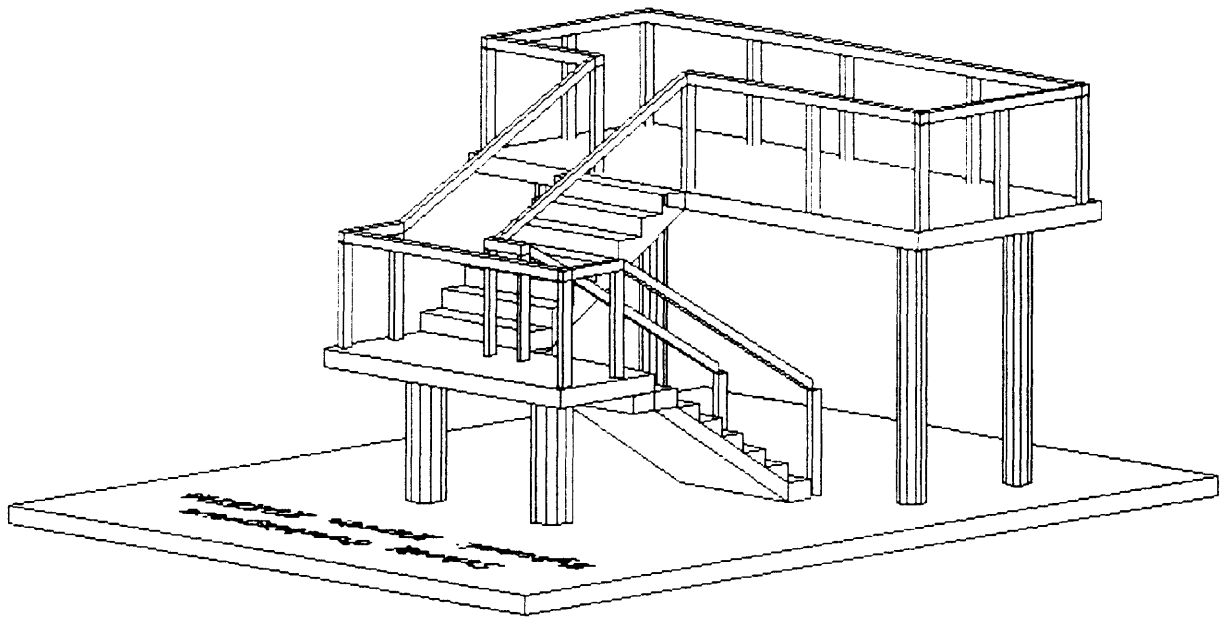
Students choose by chance an object with tower cover by helmet. Usually they are bulbous domes of orthodox churches, but some catholic examples are used as well. Documentation consists of photographs; the hardest problem is finding the helmet's profile.

4. Stairs

Students decide which kind of stairs they want to draw (there's a description needed).

General rules are:

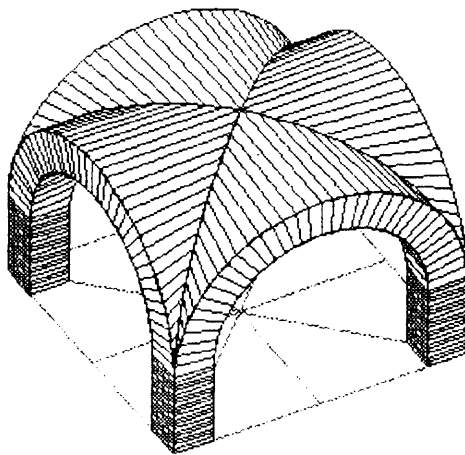
- 1* Stairs must cover at least one level and they cannot be ladder;
- 2* They must allow reaching next floor
- 3* They must be equipped with some form of a balustrade.



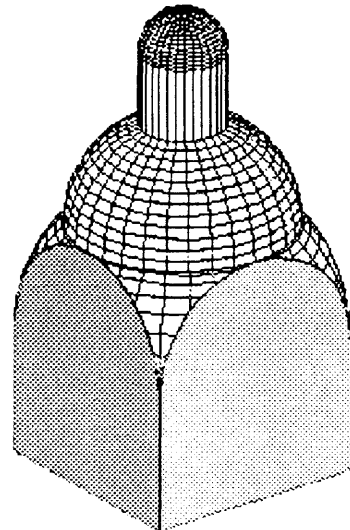
5. Vault

As in the former task, students decide on their own what kind of vault they want to draw. It is also up to them to choose a plan of the vault, add ribs etc. Final presentation is also left to students.

Sklepienie Krzyżowe



Bania na żagielkach



To get a credit for a second part of the course student must complete aforementioned exercises. The following two are not obligatory and are done by students, which have completed all the exercises satisfactorily and are interested in getting a good mark.

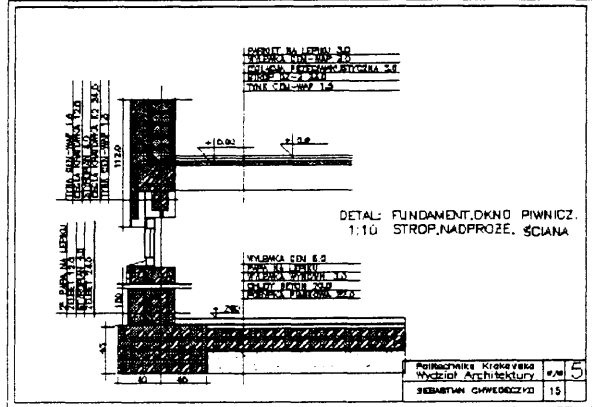
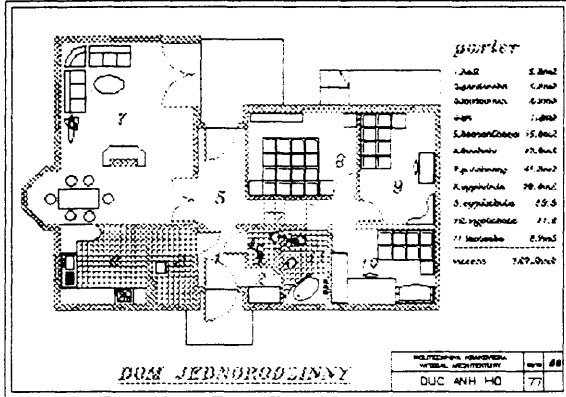
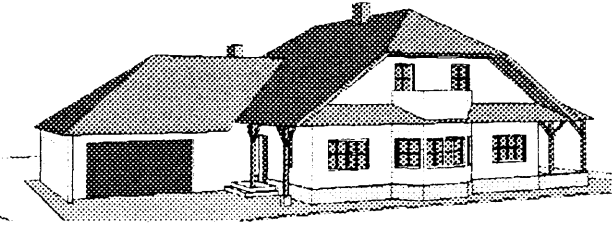
6. Elements of one's own design study

Terrain shape, urbanistics, architectural object, elevations, plans, sections, axonometric or perspective, detail...

7. Slides, movie, presentation/portfolio

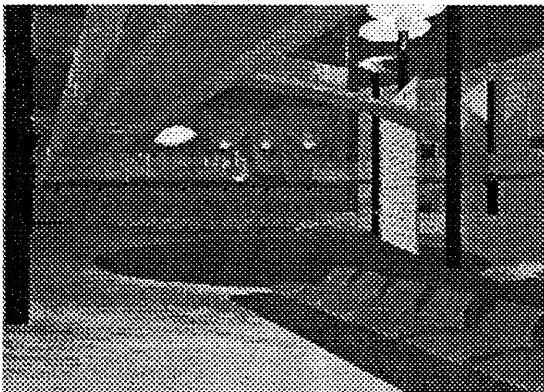
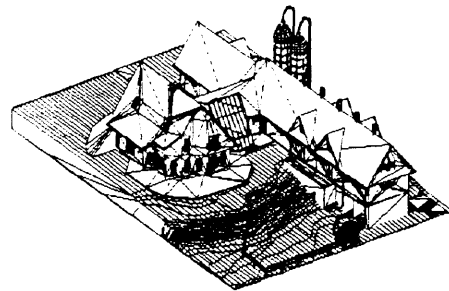


Kraków - Rynek - pierzeja AB-2



Fragment projektowanych rozwiązań urbanistycznych z zachowaniem istniejącej tkanki miasta.

Rolnicze gospodarstwo specjalistyczne – projekt.



PROJEKTOWANIE WSPOMAGANE KOMPUTEROWO

Przedmiot ma na celu nauczenie wykorzystywania komputera do celów projektowych, przy użyciu programu AutoCAD12. Jest on realizowany w podstawowych dwóch częściach obowiązkowych i jednej selektywnej, czyli wybieranej przez studenta jako zajęcia fakultatywne.

Pierwsza część obejmuje rysunki płaskie, dwuwymiarowe (bazujące na konkretnych obiektach architektonicznych), wykonywane na wprowadzonym przez studenta do komputera arkuszu w formacie A3.

Druga część wprowadza zapis obiektów już jako trójwymiarowych (przestrzennych). Obiekty są zadawane studentom w formie dokumentacji inwentaryzacyjnej, dokumentacji fotograficznej, czy też planów geodezyjnych sytuacyjno-wysokościowych. Dzięki temu studenci muszą przed wpisaniem danego obiektu do komputera wcześniej go opracować - przygotować sobie odpowiednie dane. Warto podkreślić, że poszczególne tematy (tak w części pierwszej, jak i drugiej) prowadzone są na konkretnych obiektach architektonicznych, a każdy student opracowuje indywidualne tematy - realizujące zadany program. W związku z tym, na większości zajęć praca jest właściwie indywidualna z każdym studentem.

Trzecia część Projektowania Wspomagane Komputere (jako przedmiot selektywny – wybierany przez studentów), przeznaczona jest głównie dla studentów 4 i 5 roku studiów lub młodszych, którzy przeszli pierwsze dwie części, a teraz chcą ten przedmiot wybrać jako jeden z obowiązujących przedmiotów fakultatywnych. W ramach tych zajęć prowadzimy głównie pracę zespołową nad wspólnym tematem, próbując ustalić strategię rozwiązania zadanego problemu projektowego przez grupę studentów.

Wszystkie trzy części cieszą się dużym zainteresowaniem studentów Wydziału Architektury Politechniki Krakowskiej.