| Fan name | Digital design (ECTS 6) ) |
|---|---|
| **Subject/module code** | DL1210 |
| Science teachable semesters | 3 semesters |
| Attached teacher | J. Usarov Associate Professor and M. Makhamatov Assistant Professor |
| Education language | Uzbek |
| Science type | Mandatory |
| Study hours (including independent learning) | **Total hour - 150.**<br>**Auditory training hours - 60.**<br>Lecture session hour -0<br>Practical study hours - 72<br>**Independent education -90 hour** |
| ECTS | 6 |
| Aims and objectives of science / learning outcomes | **The purpose of teaching the subject** - " Digital Design (Autocad, Sketchup, Revit) " The purpose of teaching the subject is to teach students the theoretical foundations of knowledge related to architectural and construction projects, the basic concepts and standards of architectural and construction drawing, the laws of computer-aided design, and to create a system for applying them in practice.<br>To achieve this goal, the subject fulfills the tasks of providing students with theoretical knowledge, practical skills, a methodological approach to computer design, and the formation of spatial imagination.<br>**The task of the subject** - "Digital Design (Autocad, Sketchup, Revit)" is taught on the basis of an educational and methodological complex, including modern pedagogical technologies (a technological model and map developed taking into account the characteristics of the subject). When studying the computer graphics department, students master the subject in the form of interaction with a computer. |
| Course content ( topics ) | **I. Lecture (L) sessions are not included in the standard curriculum for the subject.**<br>**II. Practical for training instructions and recommendations**<br>The teacher's preparation for a practical session begins with studying the initial documents (curriculum, thematic plan, etc.) and ends with the development of a lesson plan. The teacher should have an idea of the goals and objectives of the practical session, as well as the amount of work that each student must complete.<br>Methodological guidelines are the teacher's main methodological document in preparing and conducting practical classes.<br>The goal of practical training is to understand theory and acquire skills. Its conscious application in educational and professional activities consists in developing the ability to confidently formulate one's own point of view.<br>**Recommended practical topics** :<br>**Practical training (A)**<br>1. General understanding of the program. Three-dimensional vector data management.<br>2. Review of activities and panels performed with particular attention to verifying the metric accuracy of drawings. Coordinate system. Creating an environment for drawing..<br>3. Graphic primitives. Drawing arcs and ellipses. Using layers.<br>4. Editing commands. |

5. Finished construction details.
6. Adding and subtracting objects from each other.
7. Line types and font (writing) application in drawing.
8. The mouse pointer (target) in the drawing. The drawing graphic elements .
9. Coordinate system. Creating an environment for drawing.
10. Drawing area and viewing scales.
11. Select the line type.
12. Select line thickness.
13. Writing and editing text.
14. Select an object for editing.
15. Commands for drawing drawing elements.
16. Setting and editing dimensions.
17. Editing commands
18. Preparing the drawing for printing.
19. Assignment preparation for ground create
20. Project file create
21. Floors plan stages installation
22. Graph the image to take .
23. Basic read lines network create
24. Walls construction
25. Door and the windows installation
26. Column , beam and disputes installation .
27. Stairs build
28. Roofing build
29. 3D view , clipping build and to print preparation
30. Project print drawings on paper placement .

**III. Independent study and independent work.**

Independent learning competence serves to support students' independent self-development and increase the effectiveness of professional activities. Students perform independent work on their mobile devices under the guidance of a teacher in a traditional or electronic form.

**Recommended topics for independent study:**

1. Using the "Copy" and "Delete" commands.
2. Using the "Properties" panel, you can give the section color, types, and make the line thicker.
3. A4 and AZ formats on the screen drawing and in them base writing instead filling
4. Contains the element " Grip " participated detail drawing to do .
5. To the drawing size to put
6. Contains the element " Grip " participated detail in 3D environment obvious image modeling .
7. Using the "Array" command, create a detailed drawing consisting of repeating elements.
8. " Array " command using composition repeating elements consists of was detail obvious image to perform and A4 or A3 format placement .
9. 2D environment Projection to drawing related drawing to perform
10. Hatching the necessary cutting surfaces in the detail drawing using the "Hatching" command
11. « Modeling » panel from orders using simple geometric bodies modeling .
12. Using the "Copy" and "Delete" commands.
13. "Properties" panel using color, types of cut to give . to draw a line thickening

| | |
|---|---|
| | 14. A4 and AZ formats on the screen drawing and in them base writing instead filling<br>15. Contains the element " Grip " participated detail drawing to do .<br>16. Stair model to make<br>17. Wall and foundation modeling .<br>18. Oraopma modeling .<br>19. Close-up modeling .<br>20. 1 and 2 layered window modeling .<br>21. Providing material to the facility .<br>22. The project visualization to do<br>23. Visualization in Autodesk REVIT and comparison with other programs (3dMAX).<br>24. Visualization in Autodesk REVIT and comparison with other programs (AutoCAD).<br>25. Visualization in Autodesk REVIT and comparison with other programs (Lumion).<br>26. Wall and foundation modeling .<br>27. In AutoCAD circle , arc and right from lines using technician detail drawing to do .<br>28. Detail front, top and side views in a 2D environment projection in a way to do .<br>29. Detail in the drawing haircut and sections to perform and them mark .<br>30. In AutoCAD detail main appearances based on axonometric image create<br>31. A4 and A3 formats drawing frame , main writing and technician requirements formalize<br>32. For a building in Revit arrows system create and project plan harvest to do<br>33. Building floors in Revit create and their height signs installation .<br>34. In Revit door and window Family placement and parameters setup .<br>35. In Revit the stairs design , modeling and parameters setup .<br>36. In Revit column and beams modeling and constructive elements placement .<br>37. In Revit room and zones create , their fields determination and table harvest to do<br>38. Building facade in Revit create and facade elements edit .<br>39. Building roof in Revit various constructive methods using modeling .<br>40. building model in Revit materials to give , textures adjustment and realistic view harvest to do |
| Student assessment | Assessment of student knowledge is based on the mastery of teaching materials (tests, assignments, written and oral work results) during the semester and final examination.<br>During the physics course, students are evaluated on a 100-point system. Of these, 50 points are allocated to the current and intermediate results (60% of the 50 points are current control, independent study and 40% intermediate control), and 50 points are allocated to the final control result. Students whose total score of current and intermediate points is less than 30 points are not admitted to the final control exam. A student who scores 30 or more points in the final control is considered to have mastered the subject. |
| Exam requirements | The student must have fully mastered the theoretical and practical concepts of the subject, be able to correctly reflect the results of the analysis. The student must have completed the tasks assigned in the independent work, current and intermediate forms of assessment . At the same time, he must have received the necessary points from the current, |

| | |
|---|---|
| | intermediate, independent education and final tests in the relevant subject within the specified time.<br>A student who has not submitted current control, intermediate control, and independent learning assignments, as well as who has scored less than 30 points for these assignments and control type, will not be included in the final control type.<br>Also, a student who misses 25 percent or more of the classroom hours allocated to a subject without an excuse will be expelled from that subject, will not be allowed to take the final exam, and will be considered to have not acquired the appropriate credits in that subject.<br>A student who fails a final exam or scores between "0-29.9" on this type of exam is considered an academic delinquent. |
| Recommendation literature | **Main literature:**<br>1. NAQarshiboyev "Computer Design" Textbook - Tashkent: "Impress Media" LLC Printing House , 2023. - 254 p.<br>2. K.G.Jabborov, Sh.U.Eshonkulov, Sh.E.Eshonkulov, "Information Technologies in Construction" textbook. "Typography at JizPI", 2022. 136 pages.<br><br>**Additional literature**<br><br>1. Saydaliyev SS Computer-aided design science and technology. 2019. 260 pages.<br>2. E. Finkelstein, L. Ambrosius. AutoCAD18 J. Wiley and Sons Inc. Indianapolis. 2017<br>3. Autodeks " AutoCAD 2017 Guide to Adaptation" Autodeks, 2017, 616 pages.<br>4. Digital Cartography. Dorris Scott, University of Washington. Copyright Year: 2024. ISBN 13: 9781941823200 – 5 p.<br><br>**Information sources**<br><br>1. www. Autode ks. com.<br>2. www.AutoCAD.ru<br>3. www.google.uz<br>4. www.ref.uz<br>5. https://didattica.polito.it/pls/portal30/gap.pkg_guide.viewGap?p_cod_ins=01PRWWG&p_a_acc=2029&p_header=S&p_lang=IT&multi=N |