O‘ZBEKISTON RESPUBLIKASI
OLIY TA’LIM, FAN VA INNOVATSIYALAR VAZIRLIGI

SAMARQAND DAVLAT ARXITEKTURA – QURILISH UNIVERSITETI

“KELISHILGAN”
o‘quv ishlari bo‘yicha
prorektor _____
M.T.Shodmonqulov
Ro‘yxatga olindi: № 249/a
«30» avgust 2024 yil

“TASDIQLAYMAN”
Rektor _____
Ch.J. Turkyilmaz
«30» avgust 2024 yil

ATROF-MUHIT MUHANDISLIGIDA GIDRAVLIKA

FAN DASTURI

Bilim sohasi:	700 000 - Muhandislik, ishlov berish va qurilish sohalari
Ta’lim sohasi:	710 000 - Muhandislik ishi
Ta’lim yo‘nalishi:	60713400 – Atrof muhit muhandisligi

Samarqand – 2024

Kurs ma'lumotlari
Course Information Form

Modul kodi **Code** ATM 2100	**O'quv yili** 2024-2025	**Semestr** 4	**ECTS – Kreditlar** 4-semestr -5			
Modul turi Majburiy	**Ta'lim tili** O'zbek/rus		**Auditoriya soatlari**			Mustaqil ta'lim (soat/hafta) Independent Education (hour/week)
Fan nomi Title	**Jami yuklama**		Ma'ruza (soat/hafta) Lecture (hour/week)	Amaliy (soat/hafta) Practical (hour/week)	Laboratoriya (soat/hafta) Laboratory (hour/week)	
Atrof-muhit muhandisligida gidravlika	4-semestr -150		4-semestr -2	4-semestr -2		4-semestr -6

Dastlabki shart Prerequisite	**Yo'q** None

Semestr Semestr	**Kuzgi** autumn

Kurs tili Course language	**O'zbek, Rus** Uzbek, Russian
O'quv kursi Level of Course	**Ikkinchi kurs** Cycle
Ta'lim yo'nalishlari Course type	60713400 – Atrof muhit muhandisligi
Kurs toifasi Course Category	Majburiy Core Courses
Dars shakli Mode of Delivery	An'anaviy (Yuzma – yuz muloqot) Face – to - face

Ma'sul kafedra Owner academic unit	Atrof muhit muhandisligi Environmental engineering
Kursga ma'sul Cours Coordinator	B.M.Norqulov
O'qituvchilar Instructor(s)	X.Artikboyev
Yordamchilar Asistant(s)	X.Artikboyev

Fanni o'qitishdan maqsad Course objectives	"Atrof-muhit muhandisligida gidravlika" fan talablarida atrof muhitda suv va suv harakati zamirida sodir bo'ladigan jarayonlarni anglashda zamonaviy ilmiy dunyoqarashni shakllantirish, muhandislik kommunikatsiyalari inshootlarning gidravlik hisoblarni bajarish va ularning konstruktiv, iqtisodiy va ekologik maqbul yechimlarni topishga xizmat qiladi. The requirements of "Hydraulics in environmental engineering " science serve to form a modern scientific worldview in the understanding of the processes that occur in the environment under the influence of water and water movement, perform hydraulic calculations of engineering communications structures and find their constructive, economic and ecologically acceptable solutions.
Fanning mazmuni Course content	Fanni o'qitishdan maqsad-talabalarga qurilish muhandisligida gidravlikani harakatdagi qonuniyatlarini va jarayonlari, hamda quvurlardagi qarshiliklar va suv ta'minoti tizimlari gidravlik hisobi va murakkab

	tizimlarini hisoblashni o‘rtatish, amaliyotda tatbiq etish ko‘nikmasini hosil bo‘lishdan iborat The goal of teaching science is to teach students the laws and processes of hydraulics in civil engineering, as well as the calculation of resistances in pipes and hydraulic systems of water supply systems, and the ability to apply them in practice.
Tavsiya qilingan yoki talab qilinadigan adabiyotlar ro‘yxati Recommended Or Required Reading	Asosiy adabiyotlar: 1. Bazarov D.R., Karimov R.M., Matyakubov B.Sh., Xidirov S.Q., Gidravlika -1 Toshkent-2018 yil-539 b. 2. Bazarov D.R., Karimov R.M., Matyakubov B.Sh., Xidirov S.Q., Gidravlika -2 Toshkent-2018 yil-556 b. 3. Umarov A.Yu. «Gidravlika». Toshkent, «Uzbekistan», 2002.- 367 b. 4. Ubaydullaev P.X., Ubaydullaev B.P..Amaliy suyuqlik mexanikasi. Oliy o‘quv yurtlar uchun o‘quv qo‘llanma.To‘ron-Iqbol.Toshkent 2006. 5. R.R.Chugayev., Gidravlika., Energoizdat, 1982 god-672 str. 6. A.M.Arifjanov, Ch.Fayziev, A.U.Toshxo‘jaev., Gidravlika, Yoshlar nashriyoti uyi, Toshkent-2020 yil -370 bet 7. B.M.Norqulov, Suyuqlik va gaz mexanikasidan masalalar yechish usullari, SamDU nashriyoti 2022 yil-154 bet 8. Norqulov B.M, Tadjieva D.O. «Suyuqlik va gaz mexanikasi» fanidan (masalalar to‘plami) uslubiy qo‘llanma Samarqand, 2020 y.-74 b. Qo‘shimcha adabiyotlar 9. Girgidov A.D. «Mexanika jidkosti i gaza» (Gidravlika) Sankt-Peterburg izdatelstvo SPbGPU, 2004.- 545 s. 10. Bozorov D. R, Karimov R.K. va boshqalar «Gidravlika» Toshkent «Bilim», 2003.- 384 b. 11. Arifjanov O.M. «Gidravlika» (masalalar to‘plamasi). Toshkent., “Istiqlol”, 2005.- 84b. 12. Ya.M. Vilner, I.P. Vopnyarskiy, V.I. Kuzmenkov, I.A. Shulgin. Laboratorn`y praktikum po gidravlike, gidromashinam i gidroprivodu M. V`ssh. Shkola. 1980. 13. V.M. Lyatxer, A.M. Prudovskiy «Gidravlicheskoe modelirovanie» M., Energostroyizdat 1984 god. 14. Maxkamov S.M. Tursunova E.A. «Gidravlik atamalar lug‘ati» Toshkent. TASI, 2007.- 46 b. 15. Suyuqlik va gaz mexanikasi fanidan laboratoriya ishlarini bajarish uchun uslubiy qo‘llanma. Norqulov B.M., Xaydarov E.A. SamDAQI. Samarqand 2020. Axborot manbaalari. http://www.citycom.ru/index.php http://www.politerm.com.ru/about.htm http://www.ntpcentr.com/ru/ http://toshlyandiya.narod.ru/index/0-80 http://www.techgidravlika.ru/ http://megagum.ru/?cat=news&news_id=18 http://www.m-gidravlika.ru/
Tavsiya etilgan qo'shimcha dastur komponentlari Recommended Optional Program Components	Yo‘q\ (bor bo‘lsa yoziladi) None

Kursni o‘rganish natijalari

Course learning outcomes

1	Ushbu kursni muvaffaqiyatli tamomlagan talabalar fan dasturi bo’yicha chuqur amaliy va nazariy bilimlarga ega bo’ladilar; Students who successfully complete this course; they will have in-depth practical and theoretical knowledge of the science program;
2	Muvozanatda va harakatdagi suyuqlik qonunlarini o’rganadilar;

3	Suyuqliklarning fizik xususiyatlari o'rganadilar;
4	Suyuqliklardagi jism va ularning o'zaro ta'siri
5	Suv ta'minoti quvurlarni gidravlik hisoblaridan foydalana olish qobiliyatiga ega bo'ladilar;
6	Irrigatsiya tizimlarida sug'orishdan oqilona foydalana oladilar;
7	O'z fikr-mulohaza va xulosalarini asosli tarzda aniq bayon eta olish malakalariga ega bo'ladilar. They will have the skills to express their opinions and conclusions clearly.

Haftalik mavzular va tegishli tayyorgarlik ishlari

Weekly Subjects and Related Preparation Studies

Hafta Week	**Mavzular** Themes	**Resurslar** Related preparation
1.	Quvurlarning gidravlik hisoblash	1,2,3-darslik (I bob)
2.	Kalta quvurlarni gidravlik hisoblash	1,2,3-darslik (I bob)
3.	Gidravlik zarba hodisasi	1,2,3-darslik (I bob)
4.	Suyuqlikning yupqa devorli teshikdan va naychadan doimiy napor ta'sirida otilib chiqishi	1,2,3-darslik (I bob)
5.	Suyuqlikning bir idishdan ikkinchi idishga oqib chiqishi	1,2,3-darslik (I bob)
6.	Murakkab quvurlarni gidravlik hisoblash	1,2,3-darslik (I bob)
7.	Nukuradze grafigi. Nikuradze grafigining zonalari	1,2,3-darslik (I bob)
8.	Ochiq o'zanlarda suyuqlik oqimining ko'ndalang kesimi maydonning gidravlik elementlari	1,2,3-darslik (I bob)
9.	Gidravlik eng qulay ko'ndalang kesimi. Eng katta va eng kichik ruxsat etilgan o'rtacha tezlik	2-darslik (I bob)
10.	Suyuqlik oqimining tekis harakatini gidravlik hisoblashda asosiy masalala	2-darslik (I bob)
11.	O'zan va kanallarda suyuqlik oqimining barqaror notekis harakati	2-darslik (II bob)
12.	Kanal kesmasini solishtirma energiyasi va kritik chuqurligi	2-darslik (II bob)
13.	Yupqa devorli va keng ostonali suv o'tkazgichlar	2-darslik (III bob)
14.	Gidravlik sakrash	2-darslik (IV bob)
15.	To'g'on orqali beflarni tutashtirish. Tutash jarayonlar	2-darslik (IV bob)
	Amaliy mashg'ulot	
1	Quvur uzunligi va mahalliy qarshiliklarga napor yo'qotilishi	1,7-darslik (II bob)
2	Yo'qotilgan naporlarni qo'shib chiqish hisobi	1,7-darslik (II bob)
3	Gidravlik zarba hodisasi hisobi	1,7-darslik (II bob)
4	Naporli o'zgarmas bo'lgan holda yupqa devordagi kichik tirqishdagi va unga o'rnatilgan har xil shakldagi naycha (nasadka) lardan oqib chiqayotgan suyuqliklarning gidralik hiobi.	1,7-darslik (III bob)
5	Suyuqlikning kichik teshik va naychadan oqib chiqishi.	1,7-darslik (III bob)
6	Xalqasimon va berk quvurlar tizimining gidravlik hisobi.	1,7-darslik (III bob)
7	Nikuradze grafigining zonalari.	1,7-darslik (III bob)
8	Ochiq o'zanlarda suyuqlik oqimining ko'ndalang kesimi maydonning gidravlik elementlari.	1,7-darslik (III bob)
9	Gidravlik eng qulay ko'ndalang kesimini hisoblash. Eng katta va eng kichik ruxsat etilgan o'rtacha tezliklarni aniqlash	1,7-darslik (III bob)
10	Shezi formulasi. Suv sarfi moduli. Shezi koeffisiyentini hisoblash uchun empirik formulalari hisobi.	1,7-darslik (III bob)
11	Kanallarda suyuqlikning notekis harakati. Suyuqlik notekis harakatini differensial tenglamasi	1,7-darslik (III bob)
12	Oqimning ko'ndalang kesimining solishtirma energiyasi, kritik chuqurlik, normal chuqurlik, kritik nishabliklarni aniqlash.	1,7-darslik (III bob)
13	To'g'ri turtburchakli keng ostonali suv o'tkazgichlar. Amaliy profili devorga ega bo'lgan to'g'ri to'rt burchakli	1,7-darslik (IV bob)

	suv o'tkazgichlar.	
14	Frud soni buyicha gidravlik sakrashni hodisasini baholash.	1,7-darslik (IV bob)
15	Inshootlarning pastki beflarida oqimning kinetik energiyasini so'ndirish.	1,7-darslik (IV bob)

Baholash jarayoni
Evaluation System

Mashg'ulot turi Activities	**Soni** Number	**Baholash** Percentage of Grade
Darsga qatnashish Attendance / particition	30	10
Laboratoriya ishi Laboratory		
Amaliy ish (qo'shimcha vazifa) Application	**15**	**10**
Kurs ishi Field work		
Maxsus kurs amalyoti (ish joyida) Special course internship (work placement)		
Testlar Quizzes / studio crtics		
Uyga vazifani baholash Homework assignments		
Ijodiy ish (taqdimot) Presentations / jury		
Loyiha ishi Project		
Seminar Seminar / workshop		
Oraliq nazorat Mid -Terms	2	30
Yakuniy nazorat Final	1	50
O'zlashtirish ko'rsatgichi Percentage of in – term studies		**50**
Yakuniy imtihon bahosi Percentage of final examination		**50**
Jami Total		**100**

ECTS taqsimoti
ECTS workload table

Topshiriqlar Activities	**Soni** Number	**Davomiyligi (soat)** Duration (hour)	**Umumiy yuklama** Total workload
Mashg'ulot soati Course hours	15	2	30
Laboratoriya ishi Laboratory			
Amaliy ish (qo'shimcha vazifa) application	15	2	30
Kurs ishi Field work			
Mustaqil ta'lim (maslahat) Study hours out of class	10	6	60
Maxsus kurs amalyoti (ish joyida) Special course internship (work placement)			
Uyga vazifani baholash Homework assignments	5	2	10
Testlar / Viktorina Quizzes / studio critics			

Loyiha ishi Project			
Ijodiy ish (taqdimot) Presentations / seminar			
Oraliq nazorat Mid – terms (Examination +Examination prep. Duration)	2	5	10
Yakuniy nazorat (nazorat va nazoratga tayyorlanish soati) Final (examination +examination prep.Duration	1	10	10
		Jami yuklama Total workload	150
		Jami yuklama / 30 (soat) Total workload / 30(h)	150/30=5
		Kredit ECTS credit	5

Qo‘shimcha eslatmalar Extra Notes	Yo‘q\ (bor bolsa yoziladi) None

Fan dasturi Mirozo Ulug'bek nomidagi Samarqand davlat Arxitektura-qurilish universiteti kengashning 2024 yil 30-avgustdagi 1-sonli bayonnomasi bilan ma’qullangan.

Kafedra mudiri: Norqulov B.M.

Tuzuvchilar: Norqulov B.M.

Artikboyev X.B.