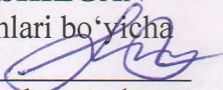


O‘ZBEKISTON RESPUBLIKASI
OLIV TA‘LIM, FAN VA INNOVATSIYALAR VAZIRLIGI

SAMARQAND DAVLAT ARHITEKTURA – QURILISH UNIVERSITETI

“KELISHILGAN”
o‘quv ishlari bo‘yicha
prorektor 
M.T. Shodmonqulov
Ro‘yxatga olindi: № 335/a
«30» avgust 2024 yil



O‘LCHOV TEXNIKASI VA BAHOLASH
FAN DASTURI

Bilim sohasi: 700 000 - Muhandislik, ishlov berish va qurilish sohalari
Ta‘lim sohasi: 710 000 – Muhandislik ishi
Ta‘lim yo‘nalishi: 60713500-Mexanika muhandisligi

Samarqand – 2024

Kurs ma'lumotlari

Course Information Form

Modul kodi Code MAS-2010	O'quv yili 2024-2025	Semestr 3	ECTS – Kreditlar 3-semestr -3			
Modul turi Tanlov	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)		
O'lchov texnikasi va baholash	3-semestr -90	4-semestr -2	-	-	4-semestr -4	

Dastlabki shart Prerequisite	Yo'q None
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Semestr Semestr	Kuzgi Fall
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Kurs tili Course language	O'zbek, Rus Uzbek, Russian
O'quv kursi Level of Course	Ikkinchi kurs Second Cycle
Ta'lim yo'nalishlari Course type	60730400-Muhandislik kommunikatsiyalari qurilishi va Montaji (Issiqlik-gaz ta'minoti va ventilyatsiya)
Kurs toifasi Course Category	Asosiy Core Courses
Dars shakli Mode of Delivery	An'anaviy (Yuzma – yuz muloqot) Face – to - face

Ma'sul kafedra Owner academic unit	Mexanika muhandisligi Department of Mechanical engineering
Kursga ma'sul Cours Coordinator	Xalmanov Aktam
O'qituvchilar Instructor(s)	Xalmanov Aktam , Omonqulov Orif
Yordamchilar Asistant(s)	Omonqulov Orif

Fanni o'qitishdan maqsad Course objectives	Muhandislik asosiy sohasida o'lchash texnikasi asoslarini o'rgatish, ob'yektlar doirasida metrologik qurilmalar va tizimlarni qo'llash texnikasini egallash, o'lchov ma'lumotlarini baholash bo'yicha zarur ilmiy infratuzilmani yaratish va ulardan foydalanishni o'rgatish ushbu kursning maqsadi hisoblanadi. Teaching the fundamentals of measurement techniques in engineering basic area, gaining the ability on application techniques of metrological devices and systems in frame of facilities, building the required scientific infrastructure about evaluation of measurement data and teaching to use it are the aims of that course.
Fanning mazmuni Course content	O'lchov texnikasi va ta'riflariga kirish / Metrologiya va kalibrlash / O'lchov texnikasi bilan bog'liq O'zbek standartlariga kirish; Boshqa xorijiy standartlar, me'yorlar va qoidalar/Eksperimental natijalarni tahlil qilish /Makro va mikrogeometriyani o'lchash/ Hajmi, burchak va maydonni o'lchash/ Bosimni o'lchash / Haroratni o'lchash / Oqim tezligini

	<p>o'lchash / Darajani o'lchash / Termofizik xususiyatlarni o'lchash Milning kuchini, momentini va quvvatini o'lchash / Datchiklar va sensorlarning asosiy fizik xususiyatlari / Mashinasozlikda elektr o'lchovlari / Atmosfera havosining ifloslanishini namuna olish va o'lchash</p> <p>Introduction to Measurement Techniques and Definitions / Metrology and Calibration / Introduce to O'zbek Standards Related with Measurement Techniques; Other Foreign Standards, Norms and Rules/Analyzing Experimental Results /Measuring of Macro and Micro Geometry/ Measuring of Dimension, Angle and Area/ Measuring of Pressure / Measuring of Temperature / Measuring of Flow Rate / Measuring of Level / Measuring of Thermo physical Characteristics / Measuring of Force, Moment and Power of Shaft / Sensors and Basic Physical Characteristics of Sensors / Electrical Measurements in Mechanical Engineering / Sampling and Measuring of Air Pollution</p>
<p>Tavsiya qilingan yoki talab qilinadigan adabiyotlar ro'yxati Recommended Or Required Reading</p>	<p>1.R.K. RAJPUT "ENGINEERING THERMODYNAMICS" For Engeneering Students of All Indian Universitiyes and Competitive Examinations.</p> <p>2. Xalmanov A.T. 2022 Eksperimentni rejalashtirish va natijalarga ishlov berish. O'quv qo'llanma 175 bet. FAN BULOG'I nashriyoti SAMARQAND ISBN-978-9943-8335-0-0</p> <p>3.Belov, G.V. Termodinamika v 2 ch. Chast' 1: Uchebnik i praktikum dlya akademicheskogo bakalavriata / G.V. Belov.-Lyubertsy: Yurayt, 2016.-264 c.</p> <p>4.Madaliev E.O'. Issiqlik texnikasi. Oliy o'quv yurtlari uchun darslik. "Farg'ona" nashriyoti, 2001.-322 b.</p> <p>5.Rashidov YU.K., Abutaliev E.B. Texnik termodinamika. Oliy o'quv yurtlarining qurilish mutaxassisliklari uchun o'quv qo'llanma, TAKI, Toshkent, 2000.-100 b.</p> <p>6.Rashidov YU.K., Abutaliev E.B. Issiqlik massa almashinuvi. Oliy o'quv yurtlarining qurilish mutaxassisliklari uchun o'quv qo'llanma, TAQI, Toshkent, 2000.-96 b.</p> <p>7.Kirillin, Vladimir Alekseyevich Texnicheskaya termodinamika: uchebnik dlya vuzov/V. A. Kirillin, V. V. Sichev, A. Ye. Sheyndlin.-5-ye izd., pererab. i dop.-Moskva: Izd. dom MEI, 2008.-495 s.: il</p>
<p>Tavsiya etilgan qo'shimcha dastur komponentlari Recommended Optional Program Components</p>	<p>Yo'q\ (bor bolsa yoziladi)</p> <p>None</p>

Kursni o'rganish natijalari

Course learning outcomes

1	Ushbu kursni muvaffaqiyatli tamomlagan talabalar berilgan termodinamik holat parametrlarni muxandislik masalalarini echishda foydalanishni o'rganadilar; Students shall assimilate metrological terms such as calibration, accuracy, uncertainty, sensitivity, repeatability, traceability [2].
2	Talabalar ishlab chiqarish va foydalanishda o'lchovga bo'lgan ehtiyojni qondirish uchun o'lchash va qo'llash usullarining printsiplarini o'rganishlari kerak [2]. Students shall learn principals of measurement and application techniques to satisfy the need of measurement in manufacturing and usage [2].
3	Talabalar o'lchash texnikasi masalalarini to'g'ri yechish uchun tegishli qurilma, tizim yoki usul va standartlarni tanlash qobiliyatiga ega bo'ladilar [8]. Students shall gain the ability on chosing relevant device, system or method ans standartds for accurate solution of measurement technique problems [8].
4	Talabalar tegishli o'lchov qurilmasi yoki tizimining ish printsiplarini o'rganishlari kerak [8]. Students shall learn the working principals of relevant measurement device or system [8]
5	Talabalar o'lchov ma'lumotlarini baholash usullarini bilishlari va qo'llay olishlari kerak [13]. Students shall know and be able to apply the evaluation methods of measurement data [13].

Haftalik mavzular va tegishli tayyorgarlik ishlari

Weekly Subjects and Related Preparation Studies

Hafta Week	Mavzular Themes	Resurslar Related preparation
1	Muhandislik kommunikatsiya tizimlarida qullaniladigan jihozlar O'lchov texnikasi va baholash faniga kirish., Ta'riflar va standartlar.	Abstrakt ma'ruzalar bo'limi 1
2	Ishlab chiqarishda ishlatiladigan o'lchov asboblari va	Abstrakt ma'ruzalar 2- bo'lim

	qurilmalari	
3	Ishlov berishda ishlatiladigan o'lchash vositalari va qurilmalar	Abstrakt ma'ruzalar bo'limi 3
4	O'lchovdagi nosozliklar va tahlil/kalibrblash	Abstrakt ma'ruzalar bo'limi 3
5	Ruxsatlar. Fitinglar, Fitinglar ruxsarlari	Abstrakt ma'ruzalar bo'limi 4
6	Makrogeometrik o'lchovlar	Abstrakt ma'ruzalar bo'limi 5
7	Mikrogeometrik o'lchovlar	Abstrakt ma'ruzalar bo'limi 5
8	Oraliq nazorat 1	
9	Burchakli va kvadratli o'lchovlar	Abstrakt Ma'ruzalar bo'limi 6
10	Bosim o'lchash, oqim o'lchash, suyuqlik sathini darajalasni aniqlash asboblari	Abstrakt ma'ruzalar bo'limi 7
11	Harorat va termofizik xususiyatlarni o'lchash	Abstrakt ma'ruzalar bo'limi 8
12	Valning kuchini, momentini va quvvatini o'lchash	Abstrakt Ma'ruzalar bo'limi 9
13	Atmosfera ifloslanishini o'lchash va namuna olish	Abstrakt Ma'ruzalar bo'limi 9
14	Sensorlar va sensorlarning asosiy fizik xususiyatlari	Abstrakt Ma'ruzalar bo'limi 9
15	Oxirgi	Abstrakt ma'ruzalar bo'limi 1
	Oraliq nazorat	

Baholash jarayoni

Evaluation System

Mashg'ulot turi Activities	Soni Number	Baholash Percentage of Grade
Darsga qatnashish Attendance / participation	15	20
Laboratoriya ishi Laboratory		
Amaliy ish (qo'shimcha vazifa) Application		
Kurs ishi Field work		
Maxsus kurs amalyoti (ish joyida) Special course internship (work placement)		
Testlar Quizzes / studio critics		
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
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Mashg'ulot soati Course hours	15	2	30
Laboratoriya ishi Laboratory			
Amaliy ish (qo'shimcha vazifa) application			
Kurs ishi Field work			
Mustaqil ta'lim Study hours out of class	1	75	30
Maxsus kurs amalyoti (ish joyida) Special course internship (work placement)			
Uyga vazifani baholash Homework assignments			
Testlar / Viktorina Quizzes / studio critics			
Loyiha ishi Project			
Ijodiy ish (taqdimot) Presentations / seminar			
Oraliq nazorat Mid – terms (Examination +Examination prep. Duration)	2	10	20
Yakuniy nazorat (nazorat va nazoratga tayyorlanish soati) Final (examination +examination prep. Duration)	1	10	10
Jami yuklama Total workload			90
Jami yuklama / 30 (soat) Total workload / 30(h)			90/3=3
Kredit ECTS credit			3


Qo'shimcha eslatmalar Extra Notes	Yo'q\ (bor bolsa yoziladi) None
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Fan dasturi Samarqand davlat arxitektura qurilish universiteti kengashning 2024 yil 30- avgustdagi 1-sonli yigilishi qarori bilan ma'qullangan.

Kafedra mudiri:

 Z.X. Fayziyev

Tuzuvchi:

 A.T. Xalmanov