

UČNI NAČRT PREDMETA / COURSE SYLLABUS

Predmet: VARSTVO PRED HRUPOM
Course title: NOISE PROTECTION

Študijski program in stopnja Study programme and level	Študijska smer Study field	Letnik Academic year	Semester Semester
Varstvo okolja in ekotehnologije, 2. stopnja	/	2.	/
Environmental Protection and Eco-technologies, 2 nd level	/	2 nd	/

Vrsta predmeta / Course type

Izbirni predmet / Optional course

Univerzitetna koda predmeta / University course code:

VPH

Predavanja Lectures	Sem. vaje Tutorial	Lab. vaje Laboratory work	Teren. vaje Field work	Samost. delo Individ. work	ECTS
20	10	5	5	80	4

Nosilec predmeta / Lecturer:

izr. prof. dr. Miha Kovačič, univ. dipl. inž. stroj. (nosilec) – predavanja, seminarske vaje

Dušan Kresnik, univ. dipl. biol. (asistent) – laboratorijske in terenske vaje

Jeziki /

Languages:

Predavanja / Lectures: Slovenščina / Slovenian

Vaje / Tutorial: Slovenščina / Slovenian

Pogoji za vključitev v delo oz. za opravljanje študijskih obveznosti:

Pogojev ni.

Prerequisites:

No formal prerequisites.

Vsebina:

Teoretične osnove zvoka
 Zakon o varstvu okolja
 Uredba o mejnih vrednostih kazalcev hrupa v okolju
 Uredba o ocenjevanju in upravljanju okoljskega hrupa
 Pravilnik o prvih meritvah in obratovalnem monitoringu hrupa
 Zakon o varnosti in zdravju pri delu
 Pravilnik o varovanju delavcev pred tveganji zaradi izpostavljenosti hrupu pri delu
 Gradbeni zakon
 Zakon o urejanju prostora

Content (Syllabus outline):

Theoretical Fundamentals of Sound
 Environmental Protection Act
 Regulation on Limit Values of Environmental Noise Indicators
 Regulation on the Assessment and Management of Environmental Noise
 Rulebook on Initial Noise Measurements and Operational Noise Monitoring
 Occupational Safety and Health Act
 Rulebook on the Protection of Workers from Risks Related to Exposure to Noise at Work
 Building Act
 Spatial Planning Act

Temeljna literatura in viri / Textbooks:

Obvezna / Required:

Zakoni:

- Zakon o varstvu okolja

- Uredba o mejnih vrednostih kazalcev hrupa v okolju
- Uredba o ocenjevanju in upravljanju okoljskega hrupa
- Pravilnik o prvih meritvah in obratovalnem monitoringu hrupa
- Zakon o varnosti in zdravju pri delu
- Pravilnik o varovanju delavcev pred tveganji zaradi izpostavljenosti hrupu pri delu
- Gradbeni zakon

Standardi:

- CNOSSOS
- ISO 12354
- ISO 16283
- ISO 10843
- ISO 1996
- ISO 3744
- ISO 717
- ISO 8297
- ISO 9612

Priporočena / Recommended:

Čudina, M. (2014). Tehnična akustika: merjenje, vrednotenje in zmanjševanje hrupa in vibracij (2. dopolnjena izd., str. XVI, 332). Fakulteta za strojništvo.

Belšak, A., & Prezelj, J. (2013). Vibracije in zvok v vzdrževanju (str. III, 189). Fakulteta za strojništvo.

Cilji in kompetence:

Študente seznaniti z zakonodajo s področja ekologije in varstva pri delu s poudarkom na hrupu, jih usposobiti za načrtovanje in vodenje okolju prijazne proizvodnje, jih usposobiti za spremljanje vplivov na okolje in jih usposobiti za načrtovanje in izvajanje ukrepov varstva pri delu.

Objectives and competences:

To familiarise students with legislation in the fields of ecology and occupational safety, with particular emphasis on noise; to train them in planning and managing environmentally friendly production; to equip them with skills for monitoring environmental impacts; and to train them in planning and implementing occupational safety measures.

Predvideni študijski rezultati:

Študent bo ob zaključku predmeta skladno s spoznanimi metodami, zakonodajo in standardi, vezanimi na področje hrupa, sposoben načrtovati in izvajati ukrepe za sprejemljivo proizvodnjo, ovrednotiti tveganja na delovnih mestih in ob delu s posameznimi stroji, načrtovati delo z minimalnimi tveganji za delavce, ki upravljajo stroje in naprave.

Intended learning outcomes:

Upon completion of the course, and in accordance with the acquired methods, legislation and standards related to noise, the student will be able to plan and implement measures for acceptable production, assess risks at workplaces and during the operation of individual machines, and plan work processes with minimal risks for workers operating machines and equipment.

Metode poučevanja in učenja:

Predmet se bo izvajal v obliki predavanj, diskusij, študij primerov, laboratorijskih in seminarskih vaj, samostojnim delom ter individualnih konzultacij s predavateljem.

Learning and teaching methods:

The course will be delivered in the form of lectures, discussions, case studies, laboratory and seminar work, independent work, and individual consultations with the lecturer.

Načini ocenjevanja:	Delež (v %) / Weight (in %)	Assessment:
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<p>Pogoj za pristop k izpitu je izdelana in ocenjena seminarska naloga.</p> <p>Končna ocena pri predmetu je sestavljena iz:</p> <ul style="list-style-type: none"> ▪ pisnega izpita (kolokviji) 40 ▪ seminarske naloge 50 ▪ predstavitve seminarske naloge 10 <p>Ocenjevalna lestvica:</p> <ul style="list-style-type: none"> ▪ zadostno 6: 60–67 % ▪ dobro 7: 68–75 % ▪ prav dobro 8: 76–83 % ▪ prav dobro 9: 84–90 % ▪ odlično 10: 91–100 % 		<p>A prerequisite for taking the exam is a completed and graded seminar paper.</p> <p>The final course grade consists of:</p> <ul style="list-style-type: none"> ▪ Written exam (mid-term tests) ▪ Seminar paper ▪ Seminar paper presentation <p>Grading scale:</p> <ul style="list-style-type: none"> ▪ Sufficient D (6): 60–67% ▪ Good C (7): 68–75% ▪ Very good B (8): 76–83% ▪ Very good B+ (9): 84–90% ▪ Excellent A (10): 91–100%
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Materialni pogoji za izvedbo predmeta :

Predavalnica z multimedijско opremo, računalniška učilnica.

Material conditions for subject realization:

Lecture room equipped with multimedia equipment; computer classroom.

Obveznosti študentov:

Pozitivno ocenjena seminarska naloga in najmanj 80 % udeležba na laboratorijskih/seminarskih vajah so pogoj za pristop k pisnemu izpitu.

Student's commitments:

A positively graded seminar paper and at least 80% attendance in laboratory/seminar work are prerequisites for taking the written exam.

Reference nosilca predmeta:

https://bib.cobiss.net/bibliographies/si/webBiblio/bib301_20260205_120007_21381.html

Lecturer's references:

https://bib.cobiss.net/bibliographies/si/webBiblio/bib301_20260205_120007_21381.html

Izbrani znanstveni članki / Selected scientific papers:

BREZOČNIK, Miran, KOVAČIČ, Miha, FICKO, Mirko. Prediction of surface roughness with genetic programming. Journal of materials processing technology. 20. dec. 2004, vol. 157/158, str. 28-36. ISSN 0924-0136. <http://dx.doi.org/10.1016/j.jmatprotec.2004.09.004>.

BREZOČNIK, Miran, KOVAČIČ, Miha. Integrated genetic programming and genetic algorithm approach to predict surface roughness. Materials and manufacturing processes. May 2003, vol. 18, iss. 3, str. 475-491. ISSN 1042-6914.

KOVAČIČ, Miha, ŠARLER, Božidar. Genetic programming prediction of the natural gas consumption in a steel plant. Energy. 2014, vol. 66, str. 273-284. ISSN 0360-5442. DOI: 10.1016/j.energy.2014.02.001.

KOVAČIČ, Miha, STOPAR, Klemen, VERTNIK, Robert, ŠARLER, Božidar. Comprehensive electric arc furnace electric energy consumption modeling : a pilot study. Energies. Jun. 2019, vol. 12, iss. 11, f. 1-13, ilustr. ISSN 1996-1073. <https://www.mdpi.com/1996-1073/12/11/2142>, DOI: 10.3390/en12112142.

BERAS, Mitja, BREZOČNIK, Miran, ŽUPERL, Uroš, KOVAČIČ, Miha. Developing an alternative calculation method for the smart readiness indicator based on genetic programming and linear regression. Buildings. [Online ed.]. 2025, vol. 15, iss. 10, [article no.] 1675, str. 1-36, ilustr. ISSN 2075-5309. <https://dk.um.si/lzpisGradiva.php?id=95862>, DOI: 10.3390/buildings15101675.

KOVAČIČ, Miha, ZUPANC, Anže, ŽUPERL, Uroš, BREZOČNIK, Miran. Reducing scrap in long rolled round steel bars using Genetic Programming after ultrasonic testing. Advances in production engineering & management. Dec. 2024, vol. 19, no. 4, str. 435-442, ilustr. ISSN 1855-6531. <https://dk.um.si/lzpisGradiva.php?id=94790>, DOI: 10.14743/apem2024.4.517.

KOVAČIČ, Miha, BALIČ, Jože, BREZOČNIK, Miran. Evolutionary approach for cutting forces prediction in milling. Journal of materials processing technology. Nov. 2004, vol. 155/156, str. 1647-1652. ISSN 0924-0136. <http://dx.doi.org/10.1016/j.jmatprotec.2004.04.318>.