

МИНИСТЕРСТВО НАУКИ И ВЫСШЕГО ОБРАЗОВАНИЯ РОССИЙСКОЙ ФЕДЕРАЦИИ
федеральное государственное бюджетное образовательное учреждение высшего образования
«Вятский государственный университет»
(ВятГУ)

УТВЕРЖДАЮ

Председатель приемной комиссии,
Ректор ВятГУ



В.Н. Пугач



Протокол заседания
Приемной комиссии
от 29.10.2021 № 25

**ПРОГРАММА
ВСТУПИТЕЛЬНОГО ИСПЫТАНИЯ**
по образовательной программе магистратуры
08.04.01 «Строительство. Здания энергоэффективного жизненного цикла
(на английском языке)»

**PROGRAM OF
ENTRANCE TEST**
for the master's degree educational program
08.04.01 "Construction. Energy efficient buildings
(in English)"

Contents of sections and topics of the academic discipline

Metrology in construction.

1. Systematic errors.
2. International system of units SI.
3. Verification of measuring instruments.
4. Measurement errors.
5. Documents in the field of standardization.
6. Processing of the results of multiple measurements.
7. Creation of metrological services of organizations and enterprises.
8. Safety requirements.
9. Legal basis for certification.
10. Voluntary certification.
11. Mandatory certification.
12. Inspection control of certified products.
13. State control over certified products.
14. Non-destructive testing.
15. Strain gauge sensors.
16. Certification
17. Standardization
18. Technical regulations.
19. Measuring device.
20. Measuring system.
21. Declaration of Conformity.
22. The quality of the object.
23. Quality management.

Design of building structures.

1. Elements of a reinforced concrete frame.
2. Limit states.
3. Constant loads.
4. Temporary loads.
5. Degree of responsibility and capital of buildings and structures.
6. Strength of the bent element.
7. Strength of the centrally compressed element.
8. Sustainability.
9. Central stretch.
10. Central compression.
11. Solid wood beams.
12. Glued beams.
13. Transverse loads of bending members near supports
14. Centrally compressed rods of solid elements of timber structures.
15. Durability of buildings and structures.
16. Solid foundations.
17. Strip foundations.
18. Columnar foundations.
19. Bearing walls.
20. Self-supporting walls.
21. Curtain walls.
22. Bearing elements.
23. Buildings with an incomplete frame.
24. Frame buildings.
25. Frameless buildings.
26. One-story industrial buildings.

27. Methods of building a building.
28. Strength of the building.
29. Overlaps.
30. Crane beams.
31. Truss beams and trusses.
32. The rigidity of the building.
33. Limit states
34. Deviation from the standard value of the load in one direction or another.
35. The degree of responsibility and capital of buildings and structures.
36. Ability of metal to break down with minor deformations.
37. The ability of a material to resist external forces.
38. The property of a material to restore its original shape after removing external loads.
39. The property of a material to receive permanent deformations after removing external loads.
40. The property of a material to deform continuously over time without increasing the load.
41. Changes in the properties of steel over time.
42. Basic mechanical properties of steel.

Bibliography

1. Basics of metrology, standardization and quality control. Course of lectures: textbook. manual for students of the direction 08.03.01 "Construction" of all training profiles / VN Epifanov; VyatSU, KirPI, FSA, department. SCM. - Kirov: VyatSU, 2018 .-- 47 p.
2. Safety of buildings and structures: textbook. manual for specialties 270103, 270105 d / o, s / o / V. N. Epifanov; VyatSU, FSA, dept. CDM. - Kirov: VyatSU, 2011 .-- 18 p.
3. Architectural and building structures: textbook. for academ. bachelor's degree / S. N. Krivoschapko, V. V. Galishnikova; Grew up. University of Friendship of Peoples. - Moscow: Yurayt, 2016 .-- 475 p.
4. Structures made of wood and plastics: textbook. allowance / B. I. Giyasov, N. G. Seregin, D. N. Seregin. - Moscow: ASV, 2016 .-- 141 p.
5. Structures made of wood and plastics: textbook. / M. M. Gappoev [and others]. - M.: Publishing house ASV, 2004 .-- 440 p.
6. Concrete and concrete structures: scientific publication / A. G. Zotkin. - 2nd ed., Rev. and additional .. - Moscow: ASV, 2016. - 328 p.
7. Metal structures: textbook. / ed. Yu. I. Kudishina. - 8th ed., Rev. and additional .. - M.: Academy, 2006. - 688 p.
8. Structural mechanics [Text]: textbook. for bachelors / V. A. Smirnov, A. S. Gorodetsky; Moscow. architectures. in-t. - 2nd ed., Rev. and additional .. - Moscow: Yurayt, 2013. - 423 p.
9. Building mechanics: textbook / A. V. Darkov, N. N. Shaposhnikov. - 12th ed., Erased .. - St. Petersburg. ; M.; Krasnodar: Lan, 2010 .-- 655 p.

The procedure for the entrance test

The admissions test is carried out in the form of a written blank test.

The assessment scale is 100-point.

The minimum number of points confirming the successful completion of the entrance test is 40.

Working time with the test is 45 minutes.