

МИНИСТЕРСТВО ОБРАЗОВАНИЯ И НАУКИ РОССИЙСКОЙ ФЕДЕРАЦИИ

ФЕДЕРАЛЬНОЕ ГОСУДАРСТВЕННОЕ АВТОНОМНОЕ  
ОБРАЗОВАТЕЛЬНОЕ УЧРЕЖДЕНИЕ ВЫСШЕГО ОБРАЗОВАНИЯ  
«СЕВЕРО-КАВКАЗСКИЙ ФЕДЕРАЛЬНЫЙ УНИВЕРСИТЕТ»

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# **СОПРОТИВЛЕНИЕ МАТЕРИАЛОВ**

**УЧЕБНОЕ ПОСОБИЕ  
на английском языке**

Направление подготовки 08.03.01 – Строительство  
Профиль подготовки «Промышленное  
и гражданское строительство»

Бакалавриат

E. Chebotarev, Kh. Sugarov

# **STRENGTH OF MATERIALS**

**COURSE OF LECTURES AND ASSIGNMENTS**

For students major in Civil Engineering

Ставрополь  
2017

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**Чеботарев Е. А., Сугаров Х. Р.**

**Ч 34 Сопротивление материалов:** учебное пособие на англ. яз. –  
Ставрополь: Изд-во СКФУ, 2017. – 205 с.

Пособие создано в соответствии с федеральными государственными образовательными стандартами в технических областях. Изложены основные темы курса "Сопротивление материалов", необходимых для формирования общего машиностроения (профессиональных) компетенций. Приведены примеры расчетов практических задач, а также задания для самостоятельной работы студентов.

Предназначено для студентов, обучающихся по направлению подготовки 08.03.01 – Строительство, профилю «Промышленное и гражданское строительство».

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**E. Chebotarev, Kh. Sugarov**

**Strength of materials:** course of lectures and assignments. –  
Stavropol: Publisher NCFU, 2017. – 205 p.

The textbook was created in line with the Federal State Educational Standards in technical areas. The textbook describes the main topics of the course "Strength of Materials", necessary for the formation of general engineering (professional) competencies. The examples of calculations of practical problems are given as well as the tasks for students self-work.

The textbook is intended for students major in Civil Engineering.

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## ▪ CONTENTS ▪

Introduction . . . . .	4
1. Fundamental concepts of Strength of Materials . . . . .	5
2. The method of sections and classification of loadings . . . . .	11
3. Engineering methods of strength calculations . . . . .	14
4. Axial tension or compression . . . . .	18
5. Torsion . . . . .	36
6. Geometrical properties of cross-sections . . . . .	46
7. Direct (simple) bending . . . . .	73
8. Oblique (biaxial, unsymmetrical) bending (bending in two planes) . . . . .	93
9. Simple shearing . . . . .	99
10. Bending with tension (compression) . . . . .	104
11. Eccentric tension (compression) . . . . .	107
12. Strength and fracture theories . . . . .	115
13. Torsion with bending of round shaft . . . . .	137
14. Displacements of framed structure . . . . .	141
15. Stability of compressed rods (Structural Stability) . . . . .	161
16. Strength under cyclic loadings (Fatigue Strength) . . . . .	167
Tests to verify acquired knowledge . . . . .	173
The recommended literature . . . . .	200
Glossary . . . . .	201

## ▪ INTRODUCTION ▪

Strength of materials is an engineering science about methods of calculation of the most widespread elements of designs in terms of strength, rigidity (stiffness) and stability at simultaneous satisfaction of the reliability and profitability requirements.

Practical confirmation of the main provisions of the discipline "Strength of Materials" has important methodological significance in the formation of an engineering student's thinking.

During the study of the discipline "Strength of materials" student major in Civil Engineering acquire following competencies:

GPC-1 – Ability for data searching, storing, processing and analysis using different data sources and database; ability to represent data in required format using information, computer and network technologies;

GPC-2 – Ability to apply basic foundations of Science to his professional activity; ability to apply methods of mathematical analysis and modeling, theoretical and experimental studies.

The main objective of a basic mechanics course should be to develop in the engineering student the ability to analyze a given problem in a simple and logical manner and to apply to its solution a few fundamental and well-understood principles. This textbook aims to help students taking course taught in English at North-Caucasus Federal University, Civil Engineering department, in their studies of one of the most important and, at the same time, most difficult engineering topics.

This course will be taken not only by foreign students (speaking good English and knowing technical and mathematical terms in English), but also by Russian students intending to improve their English while studying a professional subject.

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