# Mathematics II

This course is intended for foreign students studying at our faculty and domestic students who registered for this subject in their study plan. Conditions and requirements for this course are almost identical to the equivalent course being held in Czech language.

**Content:**

Functions of several variables - domain, limit, continuity, partial derivatives, extrema, implicit function. Multiple integrals - double and triple integral, Fubini's theorem, applications Line integral, surface integral, Gauss theorem, potential.

- Schedule of Lectures

in academic year 2025/2026

- Schedule of Tutorials

in academic year 2025/2026

**Lecturers**

doc. Mgr. Ing. Tomáš Bodnár, Ph.D., Office: KN:D-303

- lectures: Monday 12:30-14:00 and Wednesday 14:15 - 15:45.
- tutorials: Thursday 10:45 - 12:15 and Friday 10:45 - 12:15.

Ing. Anna Lancmanová, Office: KN:D-305a

- tutorials: Thursday 9:00 - 10:30 and Friday 9:00 - 10:30.

In the case of any problem (especially with assessments from tutorials, or with exams) contact your teacher.

**Tutorials, assessments**

*Tutorials are obligatory.* Assessment from tutorials (written in the study record) confirms *student's presence and activity* at the tutorials and elaboration of homework and tests. During the semester only 4 absences are allowed (without additional homework), or 6 with additional homework. Higher number of absences in tutorials will automatically lead to the assessment not being awarded. Assessment is a necessary condition for the exam. (i.e. student can make the exam only with the assessment written in the study record.) The assessments are written in the last semestral week, not later than one week after. Exceptions are possible only with the explicit agreement of the chair of the institute.

- Tasks solved in tutorials (in 2025)
  - Exercises from Textbook - Part 1
- Tutorial materials (2026) - A. Lancmanova

**Exams**

The exams from Mathematics II will be organized in the same way as in Mathematics I. There are several necessary conditions to be fulfilled by students in order to be admitted to the exam:

- Student must have a *valid assessment* from tutorials registered in the electronic system KOS. (students without valid assessment can't subscribe for the exam)
- Student has to *subscribe (register) in the KOS* system for the chosen date and level of the exam. (students who will be not subscribed for the exam in the KOS system can't participate in the exam)
- Student should come to the exam *in time*, i.e. he/she should be present in the examination room at least 10 minutes before the official start of the exam. (students who will come late, will be not allowed to participate in the exam)
- Student has to bring his/her *Student Identification Card*. (students will be not allowed to participate in the exam without presenting this card)
- The use of smartphones, smart-watch or any other kind of communication devices during the exam is strictly prohibited.
- It is advised to bring a watch (non-smart, showing just the time) allowing to follow the time remaining for completing the written test.

These conditions will be followed strictly, without any exceptions.

Sample exam tests:

Exam 1

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Exam 2

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Exam 3

**Literature:**

- Neustupa, J., Kračmar S.: Mathematics II, CTU Publishing House, Prague, 1996,
  - Textbook scan (English, old version)

  ,

  Textbook (Czech, new version)
- Finney, R. L., Thomas, G.B.: Calculus, Addison-Wesley, New York, Ontario, Sydney, 1994

**Examples:**

The *Collection of examples from Mathematics II* written in Czech by authors E. Brožíková, M. Kittlerová and F. Mráz (2016) contains both examples and their solutions. Here you find several parts translated in English. The examples in English have the same numbering but they are without solutions (corresponding solution you can find in the Czech version, which is in the brackets). English translations will be added gradually. By the star (*) are denoted the examples, which go beyond the requirements of the exam this year.

- Riemann integral [Určitý integrál]
- Calculus - part 1 (partial derivatives, ...) [Diferenciální počet-část 1]
- Calculus - part 2 (gradient, diferential, directional derivative, etc.) [Diferenciální počet-část 2]

- Implicit Functions [Implicitní funkce]
- Extrema [Extrémy]
- Double integral [Dvojný integrál]
- Triple integral [Trojný integrál]
- Line integral [Křivkový integrál]
- Surface integral [Skalární] [Vektorový]
- Divergence theorem [Gaussova-Ostrogradského věta]

**Web additional sources:**

- **Keisler, H. J.: Elementary Calculus: An Infinitesimal Approach, 2nd edition, Prindle, Weber & Schmidt, 1986.**
- **Calculus Volume I., Volume II., Volume III., provided by https://cnx.org/.**

**Timetable:**

Timetable for Mathematics II.
Semestr **Summer 2025/2026**, Code **E011092**, Range **4P+4C+0L**

Lectures | Tutorial | Laborat. | Other

| | 1. 7:15 | 2. 8:00 | 3. 9:00 | 4. 9:45 | 5. 10:45 | 6. 11:30 | 7. 12:30 | 8. 13:15 | 9. 14:15 | 10. 15:00 | 11. 16:00 | 12. 16:45 | 13. 17:45 | 14. 18:30 | 15. 19:30 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MON | | | | | | | T4:C2-436 Bodnár T. P1, avail./cap.: [35/50] | | | | | | | | |
| TUE | | | | | | | | | | | | | | | |
| WED | | | | | | | | | T4:C2-436 Bodnár T. P1, avail./cap.: [35/50] | | | | | | |
| THU | | | T4:A1-306 Lancmanová A. C101, avail./cap.: [18/18] | | T4:A1-306 Bodnár T. C102, avail./cap.: [17/18] | | | | | | | | | | |
| FRI | | | T4:A1-306 Lancmanová A. C101, avail./cap.: [18/18] | | T4:A2-262 Bodnár T. C102, avail./cap.: [17/18] | | | | | | | | | | |

(https://kos.fs.cvut.cz/timetable/course/E011092//en) Buildings-rooms: T4:XX-XXX - Technicka street 4, Praha 6 KN:X-XXX - Karlovo namesti 3, Praha 2 HO:X-XXX - Horska street 3, Praha 2

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