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| Code of course: **BMI-LOTD-307E.03** |
| Title of course: **Dedekind-finite structures** |
| Leader: **Amitayu Banerjee** |
| **General aim of the course:** Study the possible structures admitted by certain Dedekind finite sets (infinite sets that do not have an infinite countable subset, such sets exist in models of set theory where the Axiom of Choice is false). **Content of the course:** PH.D. thesis ofAgatha C. Walczak-Typke under the supervision of Professor John K. Truss. We will focus on the following topics. 1. Model theoretical basics.
2. Definitions of Dedekind-finite (IV-finite), weakly Dedekind-finite (III-finite), (II-finite), Mostowski-finite, strictly Mostowski finite and amorphous sets.
3. Fraenkel--Mostowski Permutation model constructions.
4. Plotkin’s construction.
5. Weakly Dedekind finite structures.
6. Strictly Mostowski Finite structures.
7. Structures admitting MT rank.
8. Methods from Infinitary logic.

**Grading criteria, specific requirements:** Seminar/Talk **Required reading:** PH.D. thesis of Agatha C. Walczak-Typke**Suggested further reading:** 1.W. Hodges, Model Theory. 2. T. Jech, The Axiom of Choice. |