



Multibhashi



Perfekt Verben mit haben



Class Objective

To learn verbs with haben



Concept A: Recall about Perfekt

Let us understand about Perfekt verbs with haben:

The formula of Perfect verbs with haben is:

The conjugation of the "Perfekt" is easy enough. It is constructed with the verb "sein" or "haben" in the present indicative + "Partizip II" of the verb.



Concept B: How Partizip 2 is constructed

Regular verbs with a separable prefix

(SEPARABLE PREFIX) - ge - (VERB STEM) -(e)t

Examples:

Infinitiv	Partizip II	Meaning
auf-rund-en	auf-ge-rund-e-t	to round up
ein-kauf-en	ein-ge-kauf-t	to go shopping



Concept B: How Partizip 2 is constructed

Regular verbs with inseparable prefix

(INSEPARABLE PREFIX) - (VERB STEM) -(e)t

Examples:

Infinitiv	Partizip II	Meaning
be-nutz-en	be-nutz-t	to use
ent-wickel-n	ent-wickel-t	to develop



Concept B: How Partizip 2 is constructed

Verbs ending with "-ieren"

(VERB STEM) -t

Examples:

Infinitiv	Partizip II	Meaning
studier-en	studier-t	to study (at the University)
rotier-en	rotier-t	to rotate

THE UNIVERSITY OF CHICAGO
DEPARTMENT OF CHEMISTRY
PHYSICAL CHEMISTRY
PHYSICAL CHEMISTRY
PHYSICAL CHEMISTRY

PHYSICAL CHEMISTRY

PHYSICAL CHEMISTRY

PHYSICAL CHEMISTRY

PHYSICAL CHEMISTRY

PHYSICAL CHEMISTRY

PHYSICAL CHEMISTRY

THE UNIVERSITY OF CHICAGO
DEPARTMENT OF CHEMISTRY
PHYSICAL CHEMISTRY
PHYSICAL CHEMISTRY
PHYSICAL CHEMISTRY

PHYSICAL CHEMISTRY

PHYSICAL CHEMISTRY

PHYSICAL CHEMISTRY

PHYSICAL CHEMISTRY

PHYSICAL CHEMISTRY

PHYSICAL CHEMISTRY

THE UNIVERSITY OF CHICAGO
INSTITUTE OF TECHNOLOGY
DEPARTMENT OF ELECTRICAL ENGINEERING
EECS 440: ADVANCED TOPICS IN SIGNAL PROCESSING
LECTURE 1: INTRODUCTION TO ADVANCED TOPICS

TOPIC 1: ADVANCED TOPICS IN SIGNAL PROCESSING

TOPIC 2: ADVANCED TOPICS IN SIGNAL PROCESSING

TOPIC 3: ADVANCED TOPICS IN SIGNAL PROCESSING

TOPIC 4: ADVANCED TOPICS IN SIGNAL PROCESSING

TOPIC 5: ADVANCED TOPICS IN SIGNAL PROCESSING

TOPIC 6: ADVANCED TOPICS IN SIGNAL PROCESSING

THE UNIVERSITY OF CHICAGO
DEPARTMENT OF CHEMISTRY
PHYSICAL CHEMISTRY
PHYSICAL CHEMISTRY
PHYSICAL CHEMISTRY

PHYSICAL CHEMISTRY

PHYSICAL CHEMISTRY

PHYSICAL CHEMISTRY

PHYSICAL CHEMISTRY

PHYSICAL CHEMISTRY

PHYSICAL CHEMISTRY

THE UNIVERSITY OF CHICAGO
DEPARTMENT OF CHEMISTRY
PHYSICAL CHEMISTRY
PHYSICAL CHEMISTRY
PHYSICAL CHEMISTRY

PHYSICAL CHEMISTRY

PHYSICAL CHEMISTRY

PHYSICAL CHEMISTRY

PHYSICAL CHEMISTRY

PHYSICAL CHEMISTRY

PHYSICAL CHEMISTRY

THE UNIVERSITY OF CHICAGO
DEPARTMENT OF CHEMISTRY
PHYSICAL CHEMISTRY
PHYSICAL CHEMISTRY
PHYSICAL CHEMISTRY

PHYSICAL CHEMISTRY

PHYSICAL CHEMISTRY

PHYSICAL CHEMISTRY

PHYSICAL CHEMISTRY

PHYSICAL CHEMISTRY

PHYSICAL CHEMISTRY

THE UNIVERSITY OF CHICAGO
DEPARTMENT OF CHEMISTRY
PHYSICAL CHEMISTRY
PHYSICAL CHEMISTRY
PHYSICAL CHEMISTRY

PHYSICAL CHEMISTRY

PHYSICAL CHEMISTRY

PHYSICAL CHEMISTRY

PHYSICAL CHEMISTRY

PHYSICAL CHEMISTRY

PHYSICAL CHEMISTRY

THE UNIVERSITY OF CHICAGO
DEPARTMENT OF CHEMISTRY
PHYSICAL CHEMISTRY
PHYSICAL CHEMISTRY
PHYSICAL CHEMISTRY

PHYSICAL CHEMISTRY

PHYSICAL CHEMISTRY

PHYSICAL CHEMISTRY

PHYSICAL CHEMISTRY

PHYSICAL CHEMISTRY

PHYSICAL CHEMISTRY

THE UNIVERSITY OF CHICAGO
DEPARTMENT OF CHEMISTRY
PHYSICAL CHEMISTRY
PHYSICAL CHEMISTRY
PHYSICAL CHEMISTRY

PHYSICAL CHEMISTRY

PHYSICAL CHEMISTRY

PHYSICAL CHEMISTRY

PHYSICAL CHEMISTRY

PHYSICAL CHEMISTRY

PHYSICAL CHEMISTRY

THE UNIVERSITY OF CHICAGO
DEPARTMENT OF CHEMISTRY
PHYSICAL CHEMISTRY
PHYSICAL CHEMISTRY
PHYSICAL CHEMISTRY

PHYSICAL CHEMISTRY

PHYSICAL CHEMISTRY

PHYSICAL CHEMISTRY

PHYSICAL CHEMISTRY

PHYSICAL CHEMISTRY

PHYSICAL CHEMISTRY

THE UNIVERSITY OF CHICAGO
DEPARTMENT OF CHEMISTRY
PHYSICAL CHEMISTRY
PHYSICAL CHEMISTRY
PHYSICAL CHEMISTRY

PHYSICAL CHEMISTRY

PHYSICAL CHEMISTRY

PHYSICAL CHEMISTRY

PHYSICAL CHEMISTRY

PHYSICAL CHEMISTRY

PHYSICAL CHEMISTRY

THE UNIVERSITY OF CHICAGO
DEPARTMENT OF CHEMISTRY
PHYSICAL CHEMISTRY
PHYSICAL CHEMISTRY
PHYSICAL CHEMISTRY

PHYSICAL CHEMISTRY

PHYSICAL CHEMISTRY

PHYSICAL CHEMISTRY

PHYSICAL CHEMISTRY

PHYSICAL CHEMISTRY

PHYSICAL CHEMISTRY

THE UNIVERSITY OF CHICAGO
DEPARTMENT OF CHEMISTRY
PHYSICAL CHEMISTRY
PHYSICAL CHEMISTRY
PHYSICAL CHEMISTRY

PHYSICAL CHEMISTRY

PHYSICAL CHEMISTRY

PHYSICAL CHEMISTRY

PHYSICAL CHEMISTRY

PHYSICAL CHEMISTRY

PHYSICAL CHEMISTRY

THE UNIVERSITY OF CHICAGO
INSTITUTE OF TECHNOLOGY
DEPARTMENT OF ELECTRICAL ENGINEERING
EECS 441: DIGITAL SIGNAL PROCESSING
LECTURE 10: DISCRETE-TIME FOURIER TRANSFORM

1.1. DISCRETE-TIME FOURIER TRANSFORM

1.2. DISCRETE-TIME FOURIER TRANSFORM

1.3. DISCRETE-TIME FOURIER TRANSFORM

1.4. DISCRETE-TIME FOURIER TRANSFORM

1.5. DISCRETE-TIME FOURIER TRANSFORM

1.6. DISCRETE-TIME FOURIER TRANSFORM

THE UNIVERSITY OF CHICAGO
INSTITUTE OF TECHNOLOGY
DEPARTMENT OF ELECTRICAL ENGINEERING
EECS 441: ADVANCED TOPICS IN SIGNAL PROCESSING
LECTURE 1: INTRODUCTION TO THE COURSE

1.1 COURSE OBJECTIVES

1.2 COURSE STRUCTURE

1.3 COURSE MATERIALS

1.4 COURSE SCHEDULE

1.5 COURSE FACULTY

1.6 COURSE CONTACTS

THE UNIVERSITY OF CHICAGO
INSTITUTE OF TECHNOLOGY
DEPARTMENT OF ELECTRICAL ENGINEERING
EECS 441: ADVANCED TOPICS IN SIGNAL PROCESSING
LECTURE 1: INTRODUCTION TO THE COURSE

1.1 COURSE OBJECTIVES

1.2 COURSE STRUCTURE

1.3 COURSE MATERIALS

1.4 COURSE SCHEDULE

1.5 COURSE FACULTY

1.6 COURSE CONTACTS

THE UNIVERSITY OF CHICAGO
INSTITUTE OF TECHNOLOGY
DEPARTMENT OF ELECTRICAL ENGINEERING
EECS 441: ADVANCED TOPICS IN SIGNAL PROCESSING
LECTURE 1: INTRODUCTION TO THE COURSE

1.1 COURSE OBJECTIVES

1.2 COURSE STRUCTURE

1.3 COURSE MATERIALS

1.4 COURSE SCHEDULE

1.5 COURSE FACULTY

1.6 COURSE CONTACTS

THE UNIVERSITY OF CHICAGO
INSTITUTE OF TECHNOLOGY
DEPARTMENT OF ELECTRICAL ENGINEERING
EECS 441: DIGITAL SIGNAL PROCESSING
LECTURE 10: DISCRETE-TIME FOURIER TRANSFORM

1.1. DISCRETE-TIME FOURIER TRANSFORM

1.2. DISCRETE-TIME FOURIER TRANSFORM

1.3. DISCRETE-TIME FOURIER TRANSFORM

1.4. DISCRETE-TIME FOURIER TRANSFORM

1.5. DISCRETE-TIME FOURIER TRANSFORM

1.6. DISCRETE-TIME FOURIER TRANSFORM

THE UNIVERSITY OF CHICAGO
INSTITUTE OF TECHNOLOGY
DEPARTMENT OF ELECTRICAL ENGINEERING
EECS 441: DIGITAL SIGNAL PROCESSING
LECTURE 10: DISCRETE-TIME FOURIER TRANSFORM

1.1. DISCRETE-TIME FOURIER TRANSFORM

1.2. DISCRETE-TIME FOURIER TRANSFORM

1.3. DISCRETE-TIME FOURIER TRANSFORM

1.4. DISCRETE-TIME FOURIER TRANSFORM

1.5. DISCRETE-TIME FOURIER TRANSFORM

1.6. DISCRETE-TIME FOURIER TRANSFORM

THE UNIVERSITY OF CHICAGO
DEPARTMENT OF CHEMISTRY
PHYSICAL CHEMISTRY
PHYSICAL CHEMISTRY
PHYSICAL CHEMISTRY

PHYSICAL CHEMISTRY

PHYSICAL CHEMISTRY

PHYSICAL CHEMISTRY

PHYSICAL CHEMISTRY

PHYSICAL CHEMISTRY

PHYSICAL CHEMISTRY

THE UNIVERSITY OF CHICAGO
DEPARTMENT OF CHEMISTRY
PHYSICAL CHEMISTRY
PHYSICAL CHEMISTRY
PHYSICAL CHEMISTRY

PHYSICAL CHEMISTRY

PHYSICAL CHEMISTRY

PHYSICAL CHEMISTRY

PHYSICAL CHEMISTRY

PHYSICAL CHEMISTRY

PHYSICAL CHEMISTRY

THE UNIVERSITY OF CHICAGO
DEPARTMENT OF CHEMISTRY
PHYSICAL CHEMISTRY
PHYSICAL CHEMISTRY
PHYSICAL CHEMISTRY

PHYSICAL CHEMISTRY

PHYSICAL CHEMISTRY

PHYSICAL CHEMISTRY

PHYSICAL CHEMISTRY

PHYSICAL CHEMISTRY

PHYSICAL CHEMISTRY

THE UNIVERSITY OF CHICAGO
DEPARTMENT OF CHEMISTRY
PHYSICAL CHEMISTRY
PHYSICAL CHEMISTRY
PHYSICAL CHEMISTRY

PHYSICAL CHEMISTRY

PHYSICAL CHEMISTRY

PHYSICAL CHEMISTRY

PHYSICAL CHEMISTRY

PHYSICAL CHEMISTRY

PHYSICAL CHEMISTRY

THE UNIVERSITY OF CHICAGO
INSTITUTE OF TECHNOLOGY
DEPARTMENT OF ELECTRICAL ENGINEERING
EECS 441: ADVANCED TOPICS IN SIGNAL PROCESSING
LECTURE 1: INTRODUCTION TO THE COURSE

1.1 COURSE OBJECTIVES

1.2 COURSE STRUCTURE

1.3 COURSE MATERIALS

1.4 COURSE SCHEDULE

1.5 COURSE FACULTY

1.6 COURSE CONTACTS

THE UNIVERSITY OF CHICAGO
INSTITUTE OF TECHNOLOGY
DEPARTMENT OF ELECTRICAL ENGINEERING
EECS 440: ADVANCED TOPICS IN SIGNAL PROCESSING
LECTURE 1: INTRODUCTION TO THE COURSE

1.1 COURSE OBJECTIVES

1.2 COURSE STRUCTURE

1.3 COURSE MATERIALS

1.4 COURSE SCHEDULE

1.5 COURSE FACULTY

1.6 COURSE CONTACTS

THE UNIVERSITY OF CHICAGO
INSTITUTE OF TECHNOLOGY
DEPARTMENT OF ELECTRICAL ENGINEERING
EECS 440: ADVANCED TOPICS IN SIGNAL PROCESSING
LECTURE 1: INTRODUCTION TO THE COURSE

1.1 COURSE OBJECTIVES

1.2 COURSE STRUCTURE

1.3 COURSE MATERIALS

1.4 COURSE SCHEDULE

1.5 COURSE FACULTY

1.6 COURSE CONTACTS

THE UNIVERSITY OF CHICAGO
DEPARTMENT OF CHEMISTRY
PHYSICAL CHEMISTRY
PHYSICAL CHEMISTRY
PHYSICAL CHEMISTRY

PHYSICAL CHEMISTRY

PHYSICAL CHEMISTRY

PHYSICAL CHEMISTRY

PHYSICAL CHEMISTRY

PHYSICAL CHEMISTRY

PHYSICAL CHEMISTRY

THE UNIVERSITY OF CHICAGO
DEPARTMENT OF CHEMISTRY
PHYSICAL CHEMISTRY
PHYSICAL CHEMISTRY
PHYSICAL CHEMISTRY

PHYSICAL CHEMISTRY

PHYSICAL CHEMISTRY

PHYSICAL CHEMISTRY

PHYSICAL CHEMISTRY

PHYSICAL CHEMISTRY

PHYSICAL CHEMISTRY

THE UNIVERSITY OF CHICAGO
INSTITUTE OF TECHNOLOGY
DEPARTMENT OF ELECTRICAL ENGINEERING
EECS 440: ADVANCED TOPICS IN SIGNAL PROCESSING
LECTURE 1: INTRODUCTION TO ADVANCED TOPICS

TOPIC 1: ADVANCED TOPICS IN SIGNAL PROCESSING

TOPIC 2: ADVANCED TOPICS IN SIGNAL PROCESSING

TOPIC 3: ADVANCED TOPICS IN SIGNAL PROCESSING

TOPIC 4: ADVANCED TOPICS IN SIGNAL PROCESSING

TOPIC 5: ADVANCED TOPICS IN SIGNAL PROCESSING

TOPIC 6: ADVANCED TOPICS IN SIGNAL PROCESSING

THE UNIVERSITY OF CHICAGO
DEPARTMENT OF CHEMISTRY
PHYSICAL CHEMISTRY
PHYSICAL CHEMISTRY
PHYSICAL CHEMISTRY

PHYSICAL CHEMISTRY

PHYSICAL CHEMISTRY

PHYSICAL CHEMISTRY

PHYSICAL CHEMISTRY

PHYSICAL CHEMISTRY

PHYSICAL CHEMISTRY

THE UNIVERSITY OF CHICAGO
CHICAGO, ILLINOIS
1955

1955 **1955**

1955 **1955**

1955 **1955**

1955 **1955**

1955 **1955**

1955 **1955**

THE UNIVERSITY OF CHICAGO
DEPARTMENT OF CHEMISTRY
PHYSICAL CHEMISTRY
PHYSICAL CHEMISTRY
PHYSICAL CHEMISTRY

PHYSICAL CHEMISTRY

PHYSICAL CHEMISTRY

PHYSICAL CHEMISTRY

PHYSICAL CHEMISTRY

PHYSICAL CHEMISTRY

PHYSICAL CHEMISTRY