



# **ресурсы университета HTWK Лейпциг для учебных процессов**

**и**

# **перестройка учебных планов в русских и казахских университетах**

## **Resources of the University HTWK Leipzig in Educational Processes and Restructuring of Curricula at Russian and Kazakhstan Universities**

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**1. Study at HTWK Leipzig Dept. IMN**

**2. Selected Current Projects of HTWK Leipzig**

**3. Joint Tempus Project Proposal**



# 1. Study at HTWK Leipzig Dept. IMN



Hochschule  
für Technik, Wirtschaft  
und Kultur Leipzig (FH)





## Department Information Sciences, Mathematics and Natural Sciences

35 Professors (Information Sci., Mathematics, Physics, Chemistry)

30 technical staff

5 secretaries

45 students Media Information Sciences per year

90 students Technical / Applied Information Sciences per year

Bachelor / Master / (Diploma):

information sciences

media information sciences

applied mathematics



## **structure of the study** [BAC02]

basic study: 1st to 3rd semester

main study: 4th to 6th semester

practical semester: 5th semester

bachelor work: 6th semester

## **accompanied to the study:**

practical trainings

work at practical trainings

seminars

practical semester

semester works

seminar talks



## **possibilities for practical activities**

in partner companies

in research projects of the Dept. IMN

in projects of the region

as student assistants

via factory contracts

many contacts to regional and international acting enterprises,  
e.g. IBM, SAP, Porsche, BMW



## options for international contacts:

ECTS credit system

completely established and accredited Bachelor and Master curricula, since 2001

participation in ERASMUS

DAAD supported student study practice

student exchange program and joint diploma with British, French and Spain partner universities

about 200 national and international educational, research and industry projects, e.g. supported by DAAD or also by TEMPUS: eMeReCU, JointLab, InterCollegia, InterSCAN, EduVisIm, Eu-TraceFer, IT-Softteam, IMPROBO



## view on study at the Dept. IMN

### exercises inside a multimedia-pool [SCH02]



### Lipsius-building in the Liebknecht-street [HTWK0]





**Fb IMN –  
Zuse-Building**



**Fb IMN – new  
laboratory  
building**



**computer-pool  
at the Dept.  
IMN**



**working at the  
video-  
cutting/process-  
ing place  
during the  
multimedia-  
basic course I**

[SCH02]



## 2. Selected Current Projects of HTWK Leipzig

– developments and usage in HTWK projects

- + Saxony education portal – (HTWK ~ 10 x)  
BPS / LIPS / Tool development / Content development
- + Federal Ministry for Education and Research (BMBF)  
FH3 / AIF → “ConSerVeLab”  
EXIST-SEED → “Interactive Panorama Video”, “waem”, “MoWi”,  
“AMMe”, “IP-BeeNet”
- + EU – Tempus Tacis  
“eMeReCU”, “JointLab”, “Intercollegia”, “IMPROBO”,  
“ESEEROS”, “EU-TraceFer”, “EduViSim”, “InterSCAN”,  
“ITsoftteam”
- + EU – FP6 / FP7 - SME-cooperation
- + Industry projects  
High speed networks / “ePublishers” / “SteFaG”

# some examples of projects with results included in education

**Audio- und Videokommunikation über ATM und IP**

Vorlesung SS 01 Prof. Dr. K. Hänßgen

**Kapitel 1: Gegenwartige Situation in der Netzwerk-orientierten Kommunikation**

**Bandbreitenanforderungen für Daten und Dienste**

- Größe des übertragenen Datenvolumens pro Zeiteinheit
- Burstiness

Dienst	Bandbreite Mbit/s	Burstiness
1 Steuerung	0,001...0,5	10
2 Sprache	0,002...0,32	2
3 interaktive Daten	0,001...0,1	10
4 Massendaten	1...10	1...10
5 Video	1,5...15	2...3
6 HDTV	15...150	1...2
7 Video-Telefon	0,2...2	5
8 V.-Konf. Köpfe	0,1...1	5
9 V.-Konf. klein	1...10	5
10 V.-Konf. groß	10...130	5

- Verzögerung / Antwortzeitverhalten  
- Fehlerrate

Dienst	BER $10^{-n}$	PLR $10^{-n}$	PIR $10^{-n}$	Verzögerung ms
1 Telefonie	7	3	3	25/500
2 DFÜ	7	6	6	1000 (50)
3 Video-FÜ	6	8	8	1000
4 HiFi-Ton	5	7	7	1000
5 Prozeß-Fernsteu.	5	3	3	1000
6 Video-Konferenz	7	8	8	100...300

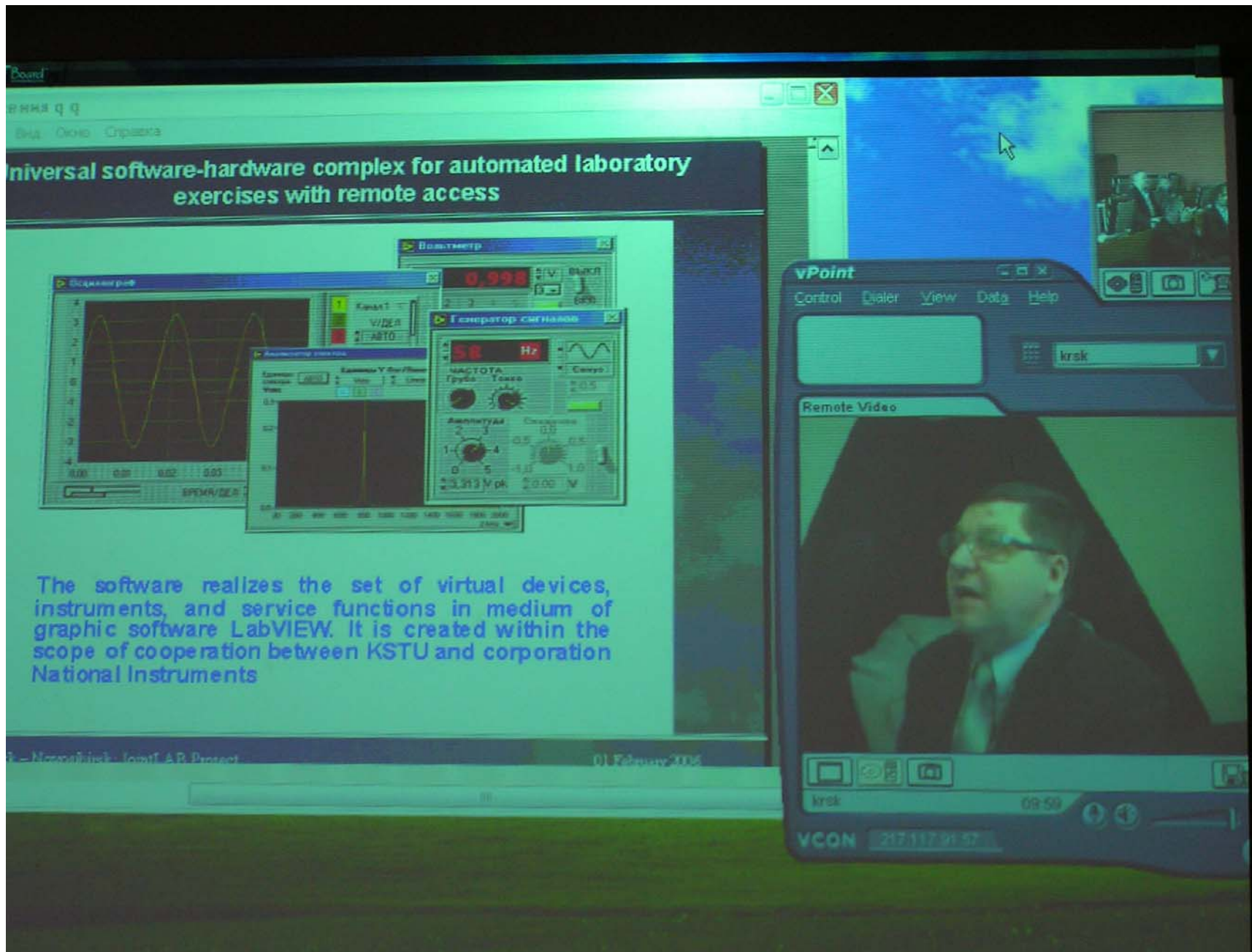
presentation  
of lectures  
via computer  
networks  
[HÄN02]



Tempus project JointLab:

multimedia lecture presentation via vPOINT between NSU, KrSTU and HTWK Leipzig, 8.2.2006,

data rate: 512 Kbit/s



# lecture presentation examples in HTWK Leipzig

GWOTS Live Stream Generator [test2.rmmc]

https://192.168.1.117/votes/ancien/haupt/index.html

## Kapitel 3 ATM

### 3.4 LAN-Anwendungen unter ATM

#### LAN-Emulation in einer integrierten Umgebung

The diagram illustrates a network architecture for LAN emulation in an ATM environment. It shows various components and their interconnections:

- LAN Emulation Clients:** Multiple clients are shown connected to the network.
- ATM Concentrator:** Connects LAN Emulation Clients to ATM End Stations.
- ATM End Stations:** Represented by laptop icons.
- ATM Switch:** A central switch connecting different parts of the network.
- Token Ring Hub and Switch:** Connects a Token Ring network to the ATM Switch.
- Full Duplex Token Ring:** A specific network configuration.
- Ethernet Hub and Router:** Connects an Ethernet network to the ATM Switch.
- LAN Emulation Servers:** Includes a LAN Emulation Configuration Server, a LAN Emulation Server, and a Broadcast/Unknown Server.

Navigation: Kapitel 0 1 2 3 4 5 6

# pocket-PC and mobile phone usage preparation

for GWOTS available too: possible usage via pocket pc



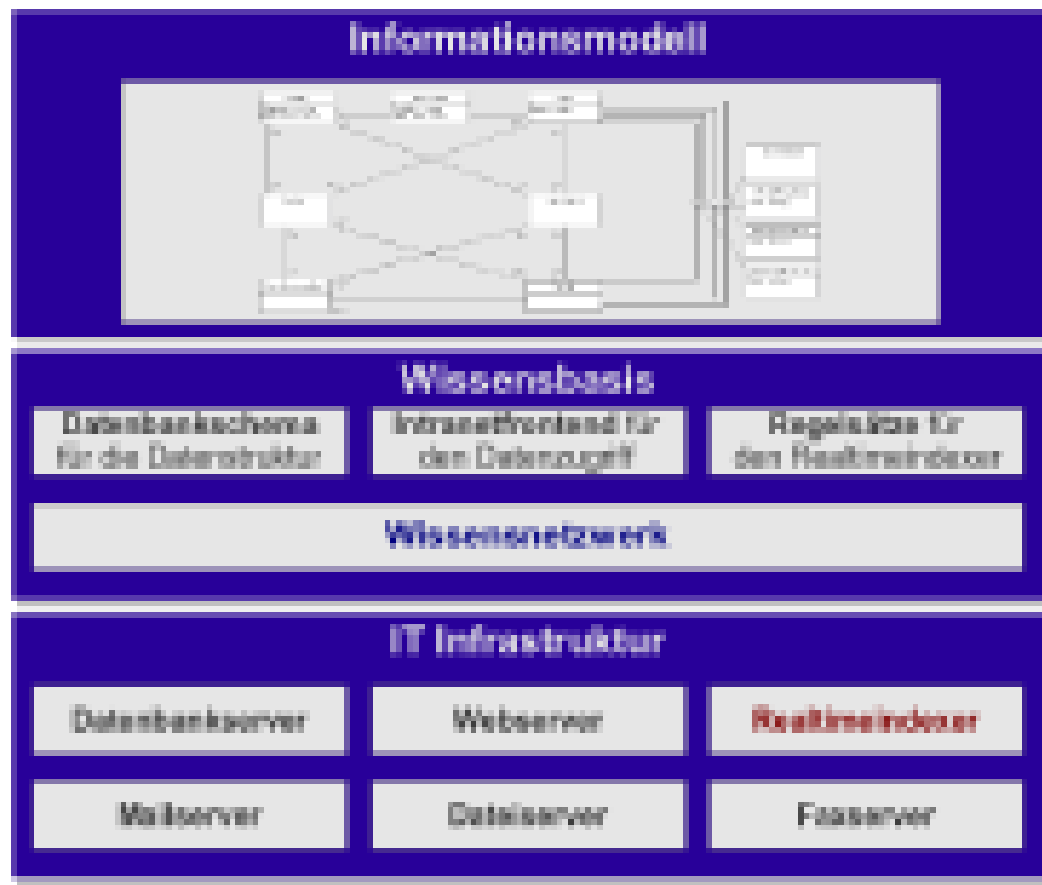
limited performance:

presentation of either AV or material or other single services

## Management support of study by MobTimetable on JAVA based devices



# knowledge management, e.g. project MoWi and Tempus project proposal JointCenter



## Panorama video for distance e-teaching support



panorama video - strained



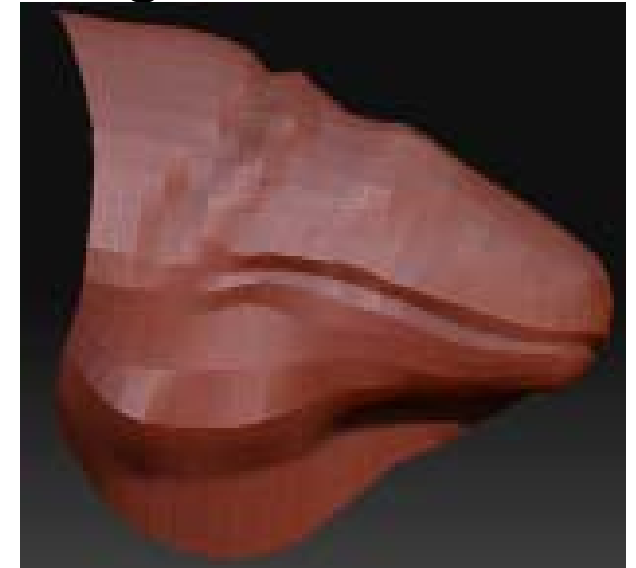
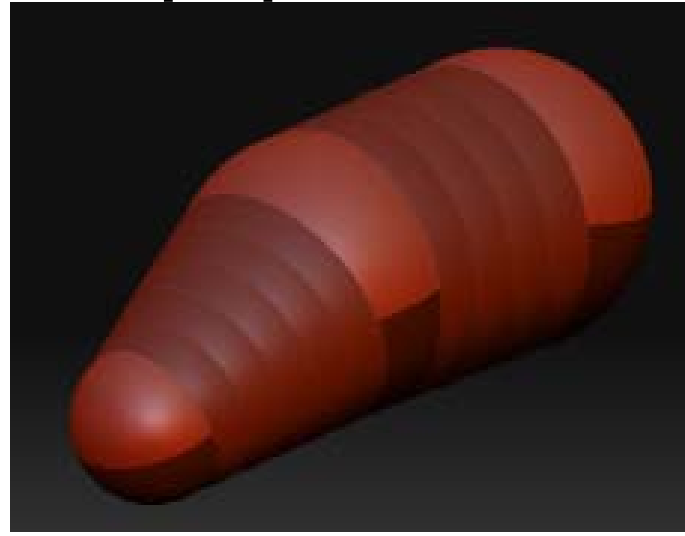
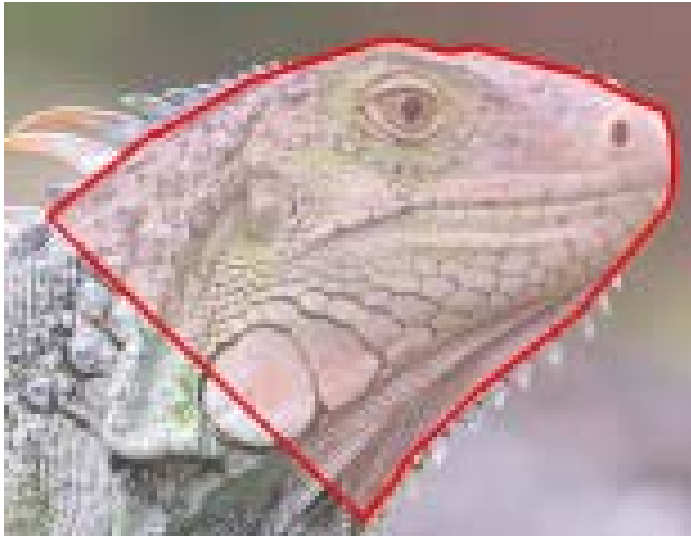
selected screen of a  
panorama video film

## Support of study and of cooperation with enterprises by modern technical equipment

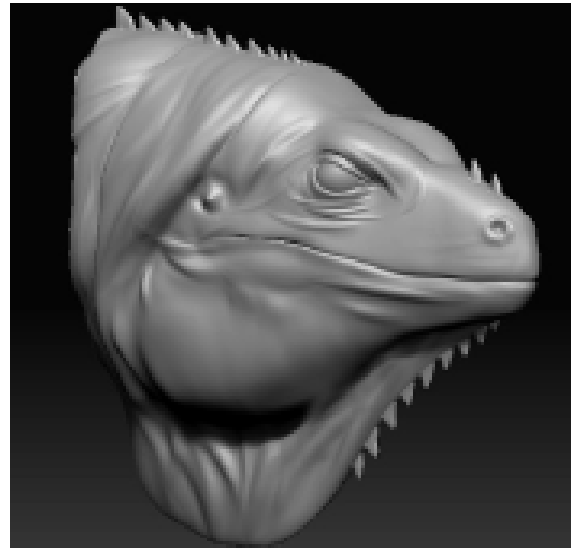


**Cheoptics360°  
for  
presentation  
of 3D-objects**

# Sculpting-Methods in Zbrush for multimedia preparation of teaching material



[FSHUF]





# 3. Joint Tempus Project Proposal

„Restructuring of Curricula at Russian and Kazakhstan Universities”  
 (“ReCurica”)

## **preliminary proposed participants:**

- HTWK Leipzig (University of Applied Sciences)
- University of Economics in Bratislava (UEB)
- VIA University College Denmark
- Orenburg State University (OSU)
- Volga State Engineering Pedagogical University
- Students Union Organisation of OSU
- Chamber of Commerce and Industry of the Orenburg Region
- Ural State University Yekaterinburg (USU)
- Aktobe State Universiti



## needs in Russia and Kazakhstan:

- introduction of the Bologna principles and support of the reform
- mobility of students
- improvement of education and of skills and competences of graduates
- restructuring of curricula as a key factor of Higher Education modernization
- evaluation and change of the content of current curricula, exclusion of unnecessary general and theoretical content
- efficient qualification of specialists
- curricula modernization for improvement of education quality
- improvement of teacher competences and experience in transfer to the Bachelor / Master system
- inclusion of practical and labor market required competences



## conditions for the proposed project in the partner countries and EU support:

- need of modernization of the Higher education system
- universities and staff unprepared to necessary changes
- unnecessary content in existing curricula
- experience of EU partner universities in Germany, Denmark and Slovakia,  
e.g. HTWK Leipzig  
with > 30 new accredited curricula due to the Bologna principles



## **principles for the project proposal with Kazakh universities:**

- employers alignment
- taking into account universities, employers and students needs
- student-oriented and practice-oriented study
- transition from teaching to learning
- curricula should be applicable for Life Long Learning
- comparability with international prototypes
- mental and ethical norms observance



## **solution of the proposed project:**

- curriculum restructuring for the participation universities and their partners
- implementation of existing curricula in educational process at Russian and Kazakhstan Universities for students of Civil Engineering Faculties, Faculties of Information Technologies and Economic Faculties
- extension of already established cooperation:
  - HTWK Leipzig with IT faculties at Russian universities;
  - VIA with Architecture / Civil Engineering faculties in Russia / Kazakhstan
  - UEB with Economic faculties at Russian and Kazakhstan universities
- improvement of cooperation and exchange between consortium partners:  
e.g. Ural (Orenburg) and Western Kazakhstan originally have common educational area and common problems at Universities
- amplification of the cooperation between these Russian, Kazakh and EU regions
- the cooperation with enterprises guarantees the necessary sustainability, EU partners split their experience



## expected results

- Training of 36 Russian and 18 Kazakhstan university teachers at three European partner universities in modern EU teaching methods
- Development of 6 restructured Bachelor curricula in every participating Russian and Kazakhstan university
- Introduction of restructured Bachelor curricula in teaching-learning process in the partner universities
- influence on further curriculum development in Russian and Kazakh universities and on their cooperation with EU and partner country enterprises



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