IBM Academic Initiative

Building skills for a smarter planet
The IBM Academic Initiative

Our mission

- Partner with academic institutions to better educate millions of students for a smarter planet and more competitive IT workforce

Our offerings

- No-charge access to IBM technology & tools (thousands of software titles)
- No-charge access to course materials and curriculum (hundreds of modules)
- Skills enhancement supported by a worldwide community of IBM volunteers

www.ibm.com/academicinitiative
Benefits and Offerings include….no-charge Software

- **IBM Software**
  Access to thousands of full-function, leading-edge **software applications** available for faculty to download at no charge.

  Faculty can:
  - Make copies of the software for their students;
  - Install the software on lab machines their students access; and
  - Make the software available on a private network their students can access

- **Virtual Computing**
  - SOA Sandbox
  - System Z Sandbox
  - Remote access to large and mid-range systems
  - On-demand demos
  - Rational Developer Sandbox for System i

Courseware Repository

...hundreds of industry-leading courses, all at no charge

- **IBM Courseware**
  More than 250 no-charge *course modules* created by IBM to help clients get the most from their IT investment. Faculty can use them to enrich their students’ classroom experience.

- Covering **topics** such as:
  - Software Development Lifecycle
  - Business Process Modelling and SOA
  - Enterprise Systems
  - Data Management
  - Social Networking and Collaboration
  - I/T Service Management/Monitoring
  - Service Science
  - ....and much more......

CoursewareMapping and Technology Roadmaps

- **ACM Courseware Mapping** provides mapping between IBM products and technologies and Association for Computing Machinery (ACM) recommended courses. Guides are available for Computer Science and Information Systems courses. Find it on our Courseware Repository page.

- **Technology Topic Roadmaps** provide information on key topics and recommendations on how to teach them.
  - Teaching Business Process Modelling
  - Teaching with Innov8
  - Teaching Enterprise Systems
  - Teaching Rational Team Concert
  - Teaching WebSphere Application Server Community Edition
  - Teaching WebSphere Application Server Community Edition

Classroom and Virtual Training

- **IBM Virtual Innovation Center (VIC)** offers comprehensive online training materials on more than 800 online courses supporting a wide range of software, hardware and services topics. The VIC is accessible 24 hours per day, 7 days per week. View the courses online, or download them for off-line study.

- **IBM Innovation Centers** offer a wide range of technical workshops taught by IT architects and brand experts. Academic Initiative members may attend these workshops at no charge on a space-available basis.

- Go on-line and find the **IBM Innovation Center in Bucharest**!

INNOV8 V2.0 – A Serious Game

INNOV8 V2 is an interactive, 3-D business simulator designed to teach the fundamentals of business process management and bridge the gap in understanding between business leaders and IT teams in an organization.

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IBM Certification Exam Discounts

- **50% Discount for Faculty & Students**
  Faculty and students can obtain 50% discounts on *IBM Certification Exams* offered through Thompson Prometric test centers around the world.

- **Free Qualifications for Students**
  - Students must pass their university course
  - Students must use IBM software for all labs/assignments/projects
  - The course must include learning objectives established by the *Academic Qualification Definition* document at a minimum
  - **Example**: DM011- this qualification attests that a student has learned *Relational Data Base Design using DB2* (9 lab. hours to cover minimum skills)

Student Offerings

- **Student Opportunity System** allows your students to post their resumes to a database that IBM customers and partners around the world can access to find students with skills needed in the IT industry.

- **Learning Resources** provide easy to use learning roadmaps with links to a wide variety of available online resources on key technologies.

  - **Topics include**
    - *Database Technology*: DB2 Express-C
    - *Enterprise Systems*: System z - Introduction to the Mainframe
    - *Service Science, Management and Engineering*
    - *Team-based Development*: Jazz and Rational Team Concert
    - *Web 2.0 Technology*: WebSphere sMash and Lotus Mashups
    - *Web Server Technology*: WebSphere Application Server Community Edition

- **My developerWorks** professional network and knowledge base portal

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Thodor Borangiu, IBM Academic Days Cluj-Napoca March 15-16 2010
Academic Initiative in University Relations 2009

- **IBM UR in Education**
  - Four EMEA *Country Projects* funded:
    - Model Driven Services and Business Processes Development in Academic Curricula (PUB, 1 week in May 2009)
    - IBM Websphere Portal Administration 1 & 2 and IBM WebSphere Portal Application Programming (PUB, 2 weeks in June 2009)
    - Desktop Virtualization Pilot Platform for a Smarter Education (NW & Central Universities, Q4 2009 → operational in Q1 2010, utilisation schedule tbd)
    - Project Management and Rational Portfolio Manager (Academy of Economic Studies of Bucharest, 1 week in November 2009)
  - Ten *training sessions* for professors & students in universities (50 days on IBM technologies: Rational, DB2, Websphere, Lotus & open-source solutions)
  - Two new *Master programs* started in 2009 with IBM SWG support (PUB, AES):
    - Service Engineering & Management (DB2, Rational, WebSphere)
    - SOA for Enterprise Management & Control (DB2, Lotus, Tivoli, SAP, JADE)
  - Eight *IBM Technical Days* in roadshows on: Smarter Planet, Cloud Computing, Open Education, Green&Beyond, Service Science and Innovation (1 day per university)
Academic Initiative in University Relations 2009

- **IBM UR in Education**
  - Opening the *IBM Rational Software Development Lab*, WUT
  - *Partnerships in Education & Research* signed (DOU) with:
    - Academy of Economic Sciences in Bucharest (January 2009)
    - Transilvania University of Brasov (March 2009)
    - West University of Timisoara (November 2009)
  - Ten *training sessions* for professors & students in universities (50 days on IBM technologies: Rational, DB2, Websphere, Lotus & open-source solutions)
  - *Open Source & Linux* trainings for Students (PUB): Fundamentals, Admin., Programming
  - Students *contests, internship* at IBM:
    - Best Linux Application for Students (2009): winners from CS & AI Dept. of PUB
    - 14th edition of the ACM SE European Region Contest (November 2009)
    - AI-Multi Agent Systems Winter Olympics – a national student contest and scientific event for a Smarter Planet (New Intelligence, Dynamic Infrastructure)
    - Great Minds 2009/2010: 3-month student internship at IBM Zurich Research Lab.
      (3 winners from Romania – PUB 2, WUT 1 – out of 6 CEEMEA winners)
  - *Technical Workshops* at AES, UNIBUC (presentations of IBM Ambassadors)

Theodor Borangiu, IBM Academic Days Cluj-Napoca March 15-16 2010
IBM Academic Initiative: Building skills for a smarter planet

Academic Initiative in University Relations 2009

- **IBM UR in Research**
  - **IBM worldwide Research Programs** awarded, recipients:
    - IBM Faculty Awards cycle 1/2009: “Integrated Cooperation Space for Competitiveness and Innovation in SME (IN@SPACE)”, Dorin Carstoiu (PUB)
    - IBM Open Collaboration Research 2009: “CEEMEA Blue Gene Research Collaboration and Community Building”, 2 Romanian universities in a 5-university consortium: Dana Petcu (West University of Timisoara) & Emil Slusanschi (PUB)

- **FP7 projects coordinated by IBM**: "Integrated Water Technology IN.WA.TE.R“, IBM Haifa coordinator, PUB participant (Radu Dobrescu)

- **IBM PhD Fellowship**:
  - 2009/2010 cycle: “Data Storage, Representation and Interpretation in Grid Monitoring Environments”, PhD student Alexandru Costan (PUB)

- **IBM John von Backus 2009 worldwide Award**: Radu Marinescu, CS Dept. PolitehnicaUTimisoara

Theodor Borangiu, IBM Academic Days Cluj-Napoca March 15-16 2010

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University Relations Plans for 2010

1. **Skills:**
   - Extending the number of *IBM courses / SW technologies* in undergraduate and master programs. Validate by student qualifications and student/professors certifications
   - *WS, trainings, conferences:* (i) on BPM, Jazz & Rational Team Concert, WebSphere sMash, Application Server and Lotus Mashups; (ii) on demand

2. **Service Science (skills and R&D):**
   (1) Support creation of a national R&D program in the Science of Services [ANCS]
   (2) Support recently launched Master program 2009/2010 “Service Engineering and Management” and promote in country universities
   (3) Support strategic program INSEED: Fostering innovation in services through open, continuous education” (PUB, TUBv, AES, Carol Davila UMF)

3. **Collaborative Research:**
   (1) Support creation of HPC/BG dynamic infrastructure for strategic research
   (2) Advise objectives and activity plans for major HPC-based research lines: Health Care, Life Sciences, Complexity/Hazard, Water Management (urban, hydrologic network, Danube and Black Sea + weather)
   (3) Support creation of a national network of HPC/BG experts & competencies

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IBM’s University Programs Key Directions 2010 (ww)

- University Programs are a key focus for enabling IBM initiatives
  - Smarter Planet, with emphasis on Smarter Cities
  - Cloud Computing, increasing adoption by students and faculty to provide a pipeline for IBM’s Cloud Academy

- All of IBM’s Business Units, across all the geographies, are involved in establishing partnerships and relationships

- Universities serve as innovation centers – a foundation for IBM to add to its value proposition in the business world

- The Smarter Planet program will need to leverage Universities to serve as a key piece of the puzzle, along with governments, enterprises, and consumers to be successful
IBM Global University Programs (GUP)
Relationships that Build Enduring Value for People & the Planet

- **Knowledge cycle** builds education system and **smarter people** (talent)
  - Research with faculty in academia to create new knowledge
  - Skills that grow global talent pool and expand opportunities
  - Recruiting students into a diverse global workforce

- **Projects cycle** builds employment system and a **smarter planet** (infrastructure)
  - Projects with Government, Academia, and Corporate change the world
IBM Global University Programs 2010 Key Directions

- **Smarter Cities**
  - Holistic Modelling, STEM Education, Jobs & Entrepreneurship
  - Urban Service Systems and Societal Networks Research Centers

- **Cloud Computing**
  - IBM Cloud Academy, IBM Academic Skills Cloud, Massive Analytics

- **Ecosystem Alignment**
  - Internal and external

- **IBM on Campus**
  - IBM Centres for Advanced Study, IBM Innovation Centers, IBM Open Collaborative Research

- **Awards Programs**
  - IBM SUR, OCR, FA, PhD Fellowships, etc.
SP: Something meaningful is happening...

“Every human being, company, organization, city, nation, natural system and man-made system is becoming interconnected, instrumented and intelligent. This is leading to new savings and efficiency—but perhaps as important, new possibilities for progress.”

The world is flatter.

The world is smaller.

The world is getting smarter.

Because it can.

Because it must.

Because we want it to.
Smarter planet

Smarter is a vision of how the world works — how every person, business, organization, government, natural system, and man-made system interacts.

Each interaction represents a chance to do something better, more efficiently, more productively.

But more than that, as the systems of the planet become smart, we have a chance to open up meaningful new possibilities for progress.
Our world is becoming **INSTRUMENTED**

Our world is becoming **INTERCONNECTED**

Virtually all things, processes and ways of working are becoming **INTELLIGENT**
IBM’s Vision for the Smarter Planet

- The instrumented, interconnected, and intelligent world can be measured, and then IT can be applied to allow proactive, not reactive decisions.

- A holistic approach to the Smarter Planet integrates all technical and business disciplines to analyze and utilize information in new ways.

- Despite, or rather because of, economic conditions, greater efficiency and an innovative approach are a compelling business model.

- It will take a coordinated effort among policy makers, enterprises and consumers to make these systems smarter.
What do we mean by “smarter planet”?

**New Intelligence**: Flexibly and efficiently linking complex data together using context-sensitive, adaptive information seeking tools.

**Green and Beyond**: Optimizing data center infrastructures for energy and space efficiency using advanced metrology techniques and physics-based modeling.

**Smart Work**: Adapting legacy solutions into formal business operation models to increase productivity and rapidly respond to changes in business processes.

**Dynamic Infrastructure**: Delivering complex enterprise class applications to end users efficiently and effectively via the network.
Enterprise data is projected to explode at 57 percent CAGR* through 2010.

Managers spend 2 hours a day searching for information – 50 percent of what they find is useless and 42 percent of them accidentally use the wrong data.

How can we take advantage of the wealth of information available in real time from a multitude of sources to make more intelligent choices?

* Compounded Annual Growth Rate
How the Academic Initiative Supports Education in New Intelligence

IBM Software for New Intelligence

- IBM DB2 V9
- IBM DB2 Express-C
- IBM DB2 Connect
- Informix Dynamic Server
- IBM DB2 Data Warehouse
- Informix SQL
- ..and much more!....

Academic Initiative Related New Intelligence Learning Resources

- More than 40 course modules supporting New Intelligence topics
- Student QuickStart kit for DB2 Express C
- developerWorks trials and demos
- DB2, DB2 Express C, and DB2 for z/OS Community Spaces within developerWorks for learning and networking
- Smarter planet Community Space
98 percent of CEOs plan business model changes.

Gap between CEOs who expect change and those who have the ability to handle change has widened sharply – nearly 3X.

How can I work smarter supported by flexible and dynamic processes modeled for the new way people buy, live & work?
How the Academic Initiative Supports Education in Smart Work

IBM Software for Smart Work

- Innov8 V2.0
- WebSphere Business Modeler
- WebSphere Application Server Community Edition (WAS CE)
- WebSphere Portal
- WebSphere Enterprise Service Bus
- WebSphere Commerce
- Rational Developer and Test software for SOA Construction and Quality
- Rational and Telelogic family of products
- Tivoli Composite applications for SOA
- ......and much more!....

Academic Initiative Related Smart Work Learning Resources

- More than 30 course modules supporting Smart Work-related topics
- Technology Teaching Roadmaps for Business Process Modeling, SOA, WebSphere sMash and WAS CE
- Student QuickStart kits for WAS CE and sMash
- developerWorks trials and demos
- SOA Sandbox
- SOA Development and Best Practices Community Space within developerWorks for learning and networking
- Smarter planet Community Space

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Theodor Borangiu, IBM Academic Days Cluj-Napoca March 15-16 2010
While 83% of CEOs expect substantial change within their enterprises, only 61% feel confident in their ability to manage change.

This “change gap” challenges CIOs to transform highly distributed, fragmented, labor-intensive infrastructures that have data, assets, applications and hardware resources operating in silos.

How do we create an infrastructure that drives down cost, is intelligent and secure, and is just as dynamic as today’s business climate?
How the Academic Initiative Supports Education in Dynamic Infrastructure

IBM Software for Dynamic Infrastructure

- Tivoli Family of software (100s of titles), including Maximo, NetCool and others
- Remote access to mainframe and mid-range hardware system
- ......and much more!....

Academic Initiative Related Dynamic Infrastructure Learning Resources

- More than 80 course modules supporting Dynamic Infrastructure topics
- Mainframe and Enterprise Computing topics, including access to IBM-facilitated summer camps for enhanced learning
- Technology Teaching Roadmaps for Enterprise Systems
- Student QuickStart kits for Enterprise Systems, Power Systems and Introduction to the Mainframe
- z/OS-focused community spaces within developerWorks for networking and support
- ‘Cloud Computing Central’ on developerWorks
- Smarter Planet Community Space

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Theodor Borangiu, IBM Academic Days Cluj-Napoca March 15-16 2010
80 percent of CEOs view sustainability as impacting brand value. 82% expect climate change regulation within 5 years.

Information technology energy use is growing 12X overall demand; data centers alone consumed 180 billion kWh in 2007, and this usage will double in the next 2 to 4 years.

How do we drive greater efficiencies, compete more effectively, and respond more quickly by taking action now on energy, the environment, and sustainability.
How the Academic Initiative Supports Education for Green and Beyond

**IBM Software for Green and Beyond**

- Lotus technologies, including Quickr, Forms and Forms Turbo
- DB2, DB2 Express-C
- WebSphere Business Modeler and Innov8
- Rational, Telelogic and Tivoli software
- Filenet, IBM Content Collector
- Remote access to mainframe and mid-range hardware system
- .....and much more!....

**Academic Initiative Related Green and Beyond Learning Resources**

- A variety of course modules supporting Green and Beyond topics
- Mainframe and Enterprise Computing modules, and access to IBM-facilitated summer camps for enhanced learning
- Technology Teaching Roadmaps for Enterprise Systems
- Student QuickStart kits for Enterprise Systems, Power Systems and Introduction to the Mainframe
- Social Software, Social Tools and z/OS-focused community spaces within developerWorks for learning and networking
- ‘Cloud Computing Central’ on developerWorks
- Smarter Planet Community Space

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IBM Solutions for SP Components (Courseware)

New Intelligence

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<th>Information Management</th>
<th>Information on Demand</th>
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<td>Information Agenda</td>
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<td>Information Infrastructure</td>
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<th>Predictive Capability</th>
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<td>Business Event Processing</td>
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<th>Industry Specific Assets (IA, MRO, Telelogic)</th>
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<td>CRM, SCM and HR Transformation</td>
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<td>Sensor and Actuator</td>
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<td>Information Integration</td>
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<th>Business Optimization</th>
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<td>Business Process Management</td>
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<td>Smart SOA</td>
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<td>Information On Demand, Information Agenda</td>
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<td>Information Infrastructure SW and Services</td>
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Smart Work

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<th>Industry business solutions and Industry frameworks</th>
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<td>Business Model Innovation services (CBMSOMA)</td>
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<td>SOA strategy services</td>
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<th>Connected Customers</th>
<th>Collaboration software and services</th>
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<td>Web 2.0 products and service</td>
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<td>Consulting services for CRM and SCM</td>
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<td>Collaborative Software Development</td>
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<td>WebSphere Commerce</td>
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<td>Mobility &amp; Contact Centre Solutions</td>
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<th>Dynamic Business Processes</th>
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<td>BPM Suite and consulting services</td>
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<td>Component Business Modelling services</td>
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<td>Enterprise Architecture products and services</td>
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<th>Smart SOA</th>
<th>Smart SOA and SOA solution services</th>
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<td>Application Infrastructure</td>
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<td>Connectivity and Integration</td>
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<td>SOA Sandbox</td>
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### IBM Solutions for SP Components (Courseware)

#### Dynamic Infrastructure
- Reduce Cost
  - Cloud Computing
  - Virtualization
  - Energy Efficiency
  - Information Infrastructure
  - Service Management
  - Asset Management
  - Security Management
  - Business Resiliency
  - Express Mid-Market Offerings
  - Strategic Outsourcing

- Improve Service

- Manage Risk

#### Green & Beyond

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<th>Finding the Value in Green</th>
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<td>Intelligent Utility Network and Metering</td>
<td>Intelligent Oilfields, Manufacturing Productivity</td>
<td>Carbon Management</td>
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<td>Green IT</td>
<td>Intelligent Transportation</td>
<td>Consumer Driven Supply Chain</td>
<td>Reputation Management Services</td>
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<td>Software for a Greener World</td>
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<td>Ethical Supply Chain Monitoring</td>
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Smarter Planet Job Category Cluster & Types of Skills

Research fuels

General Methods & Techniques

1. Model Systems
2. Connect/capture Data
3. Integrate, Analyze
4. Improve, Automate
5. Optimize, Evolve

Systems Engineering/BAO/SSME

Cross Industry Skills

Specific Technology

1. Synapsense, 2. SensorTronics
3. Infosphere Streams, ILOG, COGNOS
4. WS, Tivoli, Rational, DB2, etc.
5. BAO, Green Sigma

Industry Specific Skills

• Water Supply
• Transportation
• Energy, Electric Grid
• Cities, Buildings
• Healthcare
• Education/Gov.

SP Service Systems

Consultant

Sales

Architect

Project Manager

Specialists

Jobs

Run

Transform

Innovate

Theodor Borangiu, IBM Academic Days Cluj-Napoca March 15-16 2010
New Cloud Offering for Academic Initiative Members

- **IBM Academic Skills Cloud**
  - Accelerate the teaching of IT skills of the future, and build skills for a smarter planet. Allow faculty members to access to customizable virtual machines in minutes
  - Showcase IBM’s leading cloud offerings to future IT & Business leaders of tomorrow
  - Expedite the delivery of key IBM software for teaching purposes via a highly automated, highly virtualized, very dynamic, and flexible self service cloud environment.

IBM Academic Initiative: Building skills for a smarter planet

IBM Academic Skills Cloud

A *self service cloud delivery model* of key IBM software for teaching purposes to build skills via highly virtualized cloud environment

- Web/J2EE Development
- Software Engineering
- Requirements Management
- Software Architecture
- Database Management
- Web Infrastructure
- Quality Management
- Collaborative Software Development
- Software Delivery Automation

- Rational Requirements Composer
- Rational Asset Manager
- Rational Team Concert
- Rational Insight
- Rational Build Forge Agent
- Rational Application Developer
- Rational Build Forge
- Rational Asset Manager
- Rational Quality Manager
- Rational Software Architect
- WebSphere sMash
- WebSphere Application Server and Rational Agent Controller
- Informix Dynamic Server
- DB2 Express-C V9.7
- IDS 11.50.xC5 DE
- Lotus Turbo Forms
- SUSE Linux

www.ibm.com/academicinitiative

Academic Skills Cloud

Theodor Borangiu, IBM Academic Days Cluj-Napoca March 15-16 2010

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What images are available on IBM Academic Skills Cloud?

**Rational**
- Rational Requirements Composer
- Rational Asset Manager 7.2.0.1
- Rational Team Concert
- Rational Insight
- Rational Build Forge Agent
- Rational Application Developer
- Rational Build Forge

**WebSphere**
- WebSphere sMash
- WebSphere Application Server and Rational Agent Controller

**Information Management**
- Informix Dynamic Server Developer Edition
- DB2 Express-C V9.7
- IDS 11.50.xC5 DE

**Lotus**
- Lotus Turbo Forms

Cloud Computing

- Cloud computing is an emerging style of computing whose foundation is the **delivery of services** for software and **processing capacity** using **private or public networks**.

- Cloud enables the **dynamic availability of IT applications and infrastructure**, regardless of location.

Academic Skills Cloud

- IBM is announcing an **Academic Skills Cloud project** to **dynamically deliver provisioned virtual server images** of some of its leading software for use by College/University Faculty to more easily teach IT related skills, that can be provisioned as services on the cloud.

- The goal is to **expedite the service delivery of software used to teach IT skills** at colleges/universities through a highly automated, highly virtualized, very dynamic, and flexible self service cloud environment.

Value Proposition

- **IBM Academic Cloud**, delivered by **IBM Development Test Cloud** delivers a broad portfolio of easy to consume, real-time provisioning and enterprise software services.

- Reduces the necessity of faculty to conduct traditional and time consuming software download, installation, deployment and configuration routines to leverage our software for teaching purposes.

- Faster deployment of IBM development tools for use in classes.

- Increases faculty time focusing on teaching content, less time on logistics, and administration.

- Provides faculty and students participating in classes preconfigured virtual software images embodying best practices.

Getting Started with IBM Academic Initiative Cloud

1. REGISTER
   - Create Account
     - IBM Development Cloud
     - Watch Demonstration

2. REVIEW ASSET CATALOG
   - Identify Image(s) of interest
     - Identify Product
     - Review default topology

3. TEST
   - Add an Instance
     - Create Virtual Server
     - Provision Server
     - Access and Test

   - Getting Started Materials
     - Demo Video
     - Samples

   - Provide Feedback


Theodor Borangiu, IBM Academic Days Cluj-Napoca March 15-16 2010  © 2010 IBM Corporation
Putting it together...positioning guidance & context

IBM Cloud & Academic Initiative conversation roadmap

The world is changing

It’s becoming increasingly instrumented, interconnected and intelligent

IBM views cloud computing as an emerging paradigm for delivering and consuming IT based services

New Cloud offerings, like IBM Development and Test Cloud present new opportunities to expedite service delivery of software used to teach IT skills at universities through a highly automated, highly virtualized, very dynamic, and flexible self service cloud environment.

Academic Initiative: partnering with faculty to build skills for a smarter planet

Access to software & courseware via traditional download catalogs

Access to development software via new cloud offering

www.ibm.com/academicinitiative

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Let’s build a smarter planet

A SMARTER PLANET
WILL BE INSTRUMENTED, INTERCONNECTED, INTELLIGENT.
PEOPLE WANT IT. WE CAN DO IT.

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