

# Digital Technologies and Techniques Used in Higher Education to Cross National Boundaries

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# Digital Techniques and Technologies Used

- Digital Servers or Mainframe Machine:
  - Linux and UNIX SUN Clusters
  - Cray Computers
  - DEC (Digital Equipment Corporation)
  - IBM
- Digital Micro-Servers
  - IMB & Sun Microsystems
  - Apple
  - Dell
  - HP
  - Sony
- SUNY CS Servers:
  - [lucy.cs.fredonia.edu](http://lucy.cs.fredonia.edu)
  - [pizza.cs.fredonia.edu](http://pizza.cs.fredonia.edu)

# Digital Techniques and Technologies Used

- Software Systems Used
  - Microsoft Office
  - Google docs
  - Web 2.0 technologies
  - Wikipedia
  - Microsoft Visual .NET
  - Microsoft FrontPage
  - Dream Weaver (Apple machines)
  - Microsoft ASP .NET
  - LabPro
  - Pspice
  - MatLab
  - Maple

# Digital Systems and Web Languages

- Digital Systems:
  - SUNY SLN Network (Lotus Notes)
  - ANGEL Course Management System
  - Blackboard Course Management System
  - Web based UNIX Servers
  - Web based Linux Servers
  - Moodle
- Web Languages
  - HTML
  - XML
  - PHP
  - CSS
  - ASP
  - Java & java applets

# Digital Communication Systems

- Some emailing systems:
  - Skype
  - Google
  - FREDmail
  - SquirellMail
  - ANGEL Mail
  - gmail
  - hotmail
  - Facebook
  - Twitter
  - Verizon
  - AT & T
  - Sprint

# Students from International Countries

- Till today:
  - Turkey
  - Japan
  - India
  - South Korea
  - Bangladesh
  - China
  - Canada
  - Kenya
  - Senegal

# Objectives of Presentation

- Development of online and hybrid learning models to attract distance and traditional students including the international science and engineering undergraduates
- Current model is web-based course management system that provides an environment for teaching, learning and interaction 24/7
- Review of available avenues of distance e-learning
- Optimal combination of interactive classroom, web-based lectures and traditional instructions to achieve high quality education
- Online availability of lecture-notes and conducting class-discussions with the help of chat-rooms ensures active student participation

# ANGEL: Crossing National Boundaries

- An e-learning web-based teaching/learning management software system that can be used as online/blended instruction delivery
- Extensively employed in several public and private educational institutions in our country [1]
- Instructors can post any kind of document pertaining to an online course-work: course syllabus, power point lecture notes embedded with audios, video clips similar to those posted on YouTube, course announcements, student data files, administer student surveys, student evaluations, etc.
- Has an important tool called assessment editor: very useful and time saving for designing online quizzes/tests [2]

# Methodology for Creation of Course Modules

- For good course design methodology, instructor must employ a modular structure to create of a course map
- Modules must reside in ANGEL “Lessons” Nugget as almost entire course material sits in “Lessons” Tab
- A well-designed online J-Term/Summer CS or CIS course taught by authors has ten modules. This number may vary from course to course depending on duration of a semester
- Further, ANGEL has seven more Tabs: Course, Calendar, Resources, Communicate, Report, Automate, and Manage, which are needed for effective course design methodology
  - Creation of grade-book using “Manage” Tab
  - Important due dates of Assignments/Exams/Projects could be inserted in “Calendar” Tab

# Modular Structure of 2/5 Week Course

## Two Weeks Course

1. Course Map
  2. Welcome Message from Your Instructor
  3. Introduce Yourself & Useful Links
  4. An Introduction to ANGEL Nuggets
  5. Student Data files if any
  6. How to Submit Your Assignment on ANGEL
- Week 1
    - Module 1
    - Module 2
    - ...
    - Module 5
  - Week 2
    - Module 1
    - Module 2
    - ...
    - Module 5

## Five Weeks Course

1. Course Map
  2. Welcome Message from Your Instructor
  3. Introduce Yourself & Useful Links
  4. An Introduction to ANGEL Nuggets
  5. Student Data files if any
  6. How to Submit Your Assignment on ANGEL
- Week 1
    - Module 1
    - Module 2
  - Week 2
    - Module 1
    - Module 2
  - ...
  - Week 5
    - Module 1
    - Module 2

# Actual Screen-shot of Course Map

The screenshot shows a web browser window with the following content:

- Browser Address Bar:** <https://fredonia.sln.su...> and [CSIT-151-01: Intro to Infor...](#)
- Navigation Menu:** Home ► Course ► Lessons
- Course Map:** A folder icon representing the course map.
- Welcome Message From Dr. Singh:** A document icon representing a welcome message.
- Student\_Data\_files (CSIT151):** A folder icon representing lab textbook files.
- Introduce Yourself and Some Useful Links!:** A folder icon representing introductory materials.
- An Introduction to ANGEL Nuggets:** A document icon representing introductory content.
- Course Syllabus:** A document icon representing the course syllabus.
- How to Create a Zip-Folder of Your Assignment Work?:** A document icon representing a guide for creating zip folders.
- Week 1:** A folder icon containing Course Map, Course Syllabus, Chapter 01 & Chapter 02.
- Week 2:** A folder icon containing Chapter 03, Exam 1, & Exam Project 1.
- Week 3:** A folder icon containing Chapter 04, Chapter 05, & Chapter 06.
- Week 4:** A folder icon containing Exam 2, Exam Project 2; Chapter 07 & Chapter 08.
- Week 5:** A folder icon containing Chapter 09, Final Exam & Final Project.

Decorative elements include a stethoscope and a green apple on the right side of the page.

# How to Add Contents in “Lessons” Tab?

CSIT-105-01: Visual BASIC I: Summer 2010 - Windows Internet Explorer

https://fredonia.sln.suny.edu/section/default.asp?id=201020%2DCSIT%2D105%2D01%2D20077%2D3

File Edit View Favorites Tools Help

CSIT-105-01: Visual BASIC I: Summer 2010

Home Course Lessons

Gurmukh Singh

## Lessons

Add Content

### Create an Item

- Lesson Plan**  
Create a lesson plan.
- Folder**  
Create a new folder to organize your content.
- Page**  
Create a new page of content from scratch.
- Link**  
Create a URL to link to a document on the World Wide Web.
- File**  
Upload Zip, Word, Excel, graphic files and more from your computer.
- Drop Box**  
Create a drop box for users to submit files or ePortfolio publications.
- Game**  
Adds a crossword puzzle or quiz show content item.
- IMS/SCORM Package**  
Adds a reference to an IMS/SCORM content package.
- Discussion Forum**  
Adds a gradable Discussion Forum for collaboration or Q & A.
- Blog**  
Adds a blog page where all users can post.
- Wiki**  
Adds a wiki page where users can freely edit each others posts.
- Course Syndication Folder**  
Create a new Course Syndication Folder to organize your content for RSS aggregators or Podcasting.
- Assessment**  
Create a new assessment, practice test or exam.
- Survey**  
Create a new survey.
- Section Heading**  
Create a new inline section heading.
- Turnitin Drop Box**  
Create Turnitin drop box

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PDA

https://fredonia.sln.suny.edu/section/content/Default.asp?WCI=pgAdd&WCU=CRSCNT&onCancel=parent&

Internet | Protected Mode: On 105%

# “Calendar” Tab Screen-Shot

CSIT-205-01: Visual BASIC II: Summer 2010

Course **Calendar** Lessons Resources Communicate Report Automate Manage

Home ▶ Course ▶ July 2010 Calendar

Gurmukh Singh

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
				1 12:00p Office I	2	3
4	5 Assign 2 due T	6	7 Quiz 1 is Today	8 12:00p Office I	9	10
11	12 Assign 3 due T	13	14	15 12:00p Office I	16 Assign 4 due T	17
18	19 Quiz 2 is Today	20	21	22 12:00p Office I	23 Assign 5 due T	24
25	26	27	28 Assign 6 due T	29 12:00p Office I	30 Final Project Du Quiz 3 is Today	31

Internet | Protected Mode: On 100%

# “Resources” Tab Screen-Shot

CSIT-205-01: Visual BASIC II: Summer 2010 - Windows Internet Explorer

https://fredonia.sln.suny.edu/section/default.asp?id=201020%2DCSIT%2D205%2D01%2D20121%2D4

File Edit View Favorites Tools Help Convert Select

CSIT-205-01: Visual BASIC II: Summer 2010

CSIT-205-01: Visual BASIC II: Summer 2010

Course Calendar Lessons **Resources** Communicate Report Automate Manage

Home Course Resources Gurmukh Singh

Resources Edit Page Refresh

**Syllabus**

**Course Syllabus**

**Wikipedia**

Search

Wikipedia  Wiktionary  Wikibooks

Search Full-text Search

**Google™**

Search

Search


**Course Resources**

Communicate links

- How to reach Dr. Singh on ANGEL Mail Serve?r
- How to reach Dr. Singh on CS Server?
- How to reach Dr. Singh on Gmail?
- How to reach Dr. Singh on Outlook Web Access?

**SUNY Fredonia Student Resources**

Beyond Normal: Making Your Writing Devilishly Good Guide to Writing Expectations at SUNY Fredonia.



# “Communicate” Tab Screen-Shot

# “Report” Tab Screen-Shot

CSIT-105-01: Visual BASIC I: Summer 2010 - Windows Internet Explorer

https://fredonia.sln.suny.edu/section/default.asp?id=201020

File Edit View Favorites Tools Help

CSIT-105-01: Visual BASIC I: Summer 2010

Course Calendar Lessons Resources Communicate **Report** Automate Manage

Home Course Reports Console

Map

- expand collapse
- Course
- Calendar
- Lessons
- Resources
- Communicate
- Report
- Automate
- Manage

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Map What's New Tasks Search About

Reports Console

**Report Settings** Saved Reports

**Choose Report**

Category Report User(s) [Show filter](#)

Learner Profile Activity Logs Bussey, Gilbert

**Configure Report** [\[-\] Collapse](#)

Starting This Monday Ending before Now

Select report view

Chart

Run Print Preview Send Report Export Save

Internet | Protected Mode: On 100%

# “Manage” Tab Screen-Shot

CSIT-105-01: Visual BASIC I: Summer 2010 - Windows Internet Explorer

https://fredonia.sln.suny.edu/section

File Edit View Favorites Tools Help

CSIT-105-01: Visual BASIC I: Summer 2010

CSIT-105-01: Visual BASIC I: Summer 2010

Course Calendar Lessons Resources Communicate Report Automate **Manage**

Home Course Management Console Gurmukh Singh

Management Console

Edit Page Refresh

**Course Management**

- Gradebook
- Roster
- Teams
- Attendance

**Course Settings**

- General Course Settings
- Course Theme Selector
- Tab Settings
- Environment Variables
- Mail Settings

**Data Management**

- Course Files Manager
- Backup and Restore
- Import Console
- Export Console
- Data Maintenance
- Date Manager
- Keyword Manager
- Assessment Question Bank Manager
- Survey Question Bank Manager
- Rubric Manager

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PDA

Internet | Protected Mode: On 100%

# “Grading Scale” Screen-Shot

CSIT-105-01: Visual BASIC I: Summer 2010

Course Calendar Lessons Resources Communicate Report Automate Manage

Home > Course > Management Console > Gradebook > Scales

Gurmukh Singh

### Grading Scale

Label	Minimum Percent	
A	94	<a href="#">Edit</a> <a href="#">Delete</a>
A-	90	<a href="#">Edit</a> <a href="#">Delete</a>
B+	86	<a href="#">Edit</a> <a href="#">Delete</a>
B	82	<a href="#">Edit</a> <a href="#">Delete</a>
B-	78	<a href="#">Edit</a> <a href="#">Delete</a>
C+	74	<a href="#">Edit</a> <a href="#">Delete</a>
C	70	<a href="#">Edit</a> <a href="#">Delete</a>
C-	66	<a href="#">Edit</a> <a href="#">Delete</a>
D+	63	<a href="#">Edit</a> <a href="#">Delete</a>
D	60	<a href="#">Edit</a> <a href="#">Delete</a>
D-	57	<a href="#">Edit</a> <a href="#">Delete</a>
F	0	<a href="#">Edit</a> <a href="#">Delete</a>

[Add New](#)

[Back To Main Menu](#)

Internet | Protected Mode: On 100%

# Instructions: Assignment Submission

The screenshot shows a Windows Internet Explorer browser window. The address bar displays the URL <https://fredonia.sln.suny.edu/section>. The browser's menu bar includes File, Edit, View, Favorites, Tools, and Help. The page title is "CSIT-105-01: Visual BASIC I: Summer 2010". The breadcrumb navigation shows: Home > Course > Lessons > How to Submit Your Assignment Work on ANGEL?. The user's name, Gurmukh Singh, is visible in the top right corner. The main content area is titled "How to Submit Your Assignment Files On ANGEL?". Below the title, there are links for Settings, Reports, Utilities, Submissions, and Delete, along with Print, My Notes, Previous, and Next options. The instructions are as follows:

**Note:** (a) Please submit all files of each assignment in a single attempt.  
(b) Following steps are required to submit files in *Assignment # Drop Box*.

1. Log into **ANGEL**, click course **CSIT 105** link and then click **Lessons tab**.
2. Locate and click **Assignment # Drop Box**. An uploading area appears that contains a **Title** box, a **Message** box, an **Attachments** button and a **Submit** button.
3. Type in the **Title** box your **last name** and **assignment #**, e.g., Smith-Assign\_01.
4. Type a message in the **Message** box if needed.
5. Click **Attachments** button and a **new uploading window** pops up.
6. In this new window, click **Browse** button and **Upload Word doc file** as explained in option (b) of your Assignment Sheet.
7. Click the **Finished** button when all files are uploaded to accomplish Step 6.
8. Click **Submit** button, then **OK** button on the **dialog box**.

The browser status bar at the bottom shows "Internet | Protected Mode: On" and a zoom level of 100%.

# Items/Folders in Module 1

Home > Course > Lessons > Week 1 > Module 1





Module 1  
Course Map, Course Syllabus & Introduction to Spreadsheets


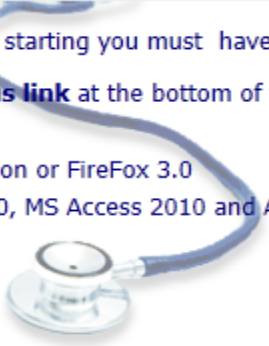
Add Content Rearrange Settings Reports Utilities Submissions Delete Print My Notes | Previous Next

Today is first day of online course CSIT 151. Before starting you must have the following items:

1. Course Textbooks (Refer to **Course Syllabus link** at the bottom of this page)
2. IBM PC or Laptop
3. Browser Internet Explorer 7.0 or higher version or FireFox 3.0
4. Microsoft Word 2007 or 2010, MS Excel 2010, MS Access 2010 and Adobe Acrobat Reader installed on your computer/laptop
5. 4 GB flash/jump drive
6. Access to high speed internet

Please spend some time in reading the first two items and exploring the third one as listed below:

-  **Course Map**
-  **Course Syllabus**  
settings reports utilities submissions delete
-  **Introduction to Spreadsheets**
-  **Summer Calendar**



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PDA

# Items/Folders in Module 2

The screenshot shows a web browser window with the address bar displaying <https://fredonia.sln.su...> and a tab titled "CSIT-151-01: Intro to Infor...". The browser's menu bar includes "File", "Edit", "View", "Favorites", "Tools", and "Help". The page content is organized as follows:

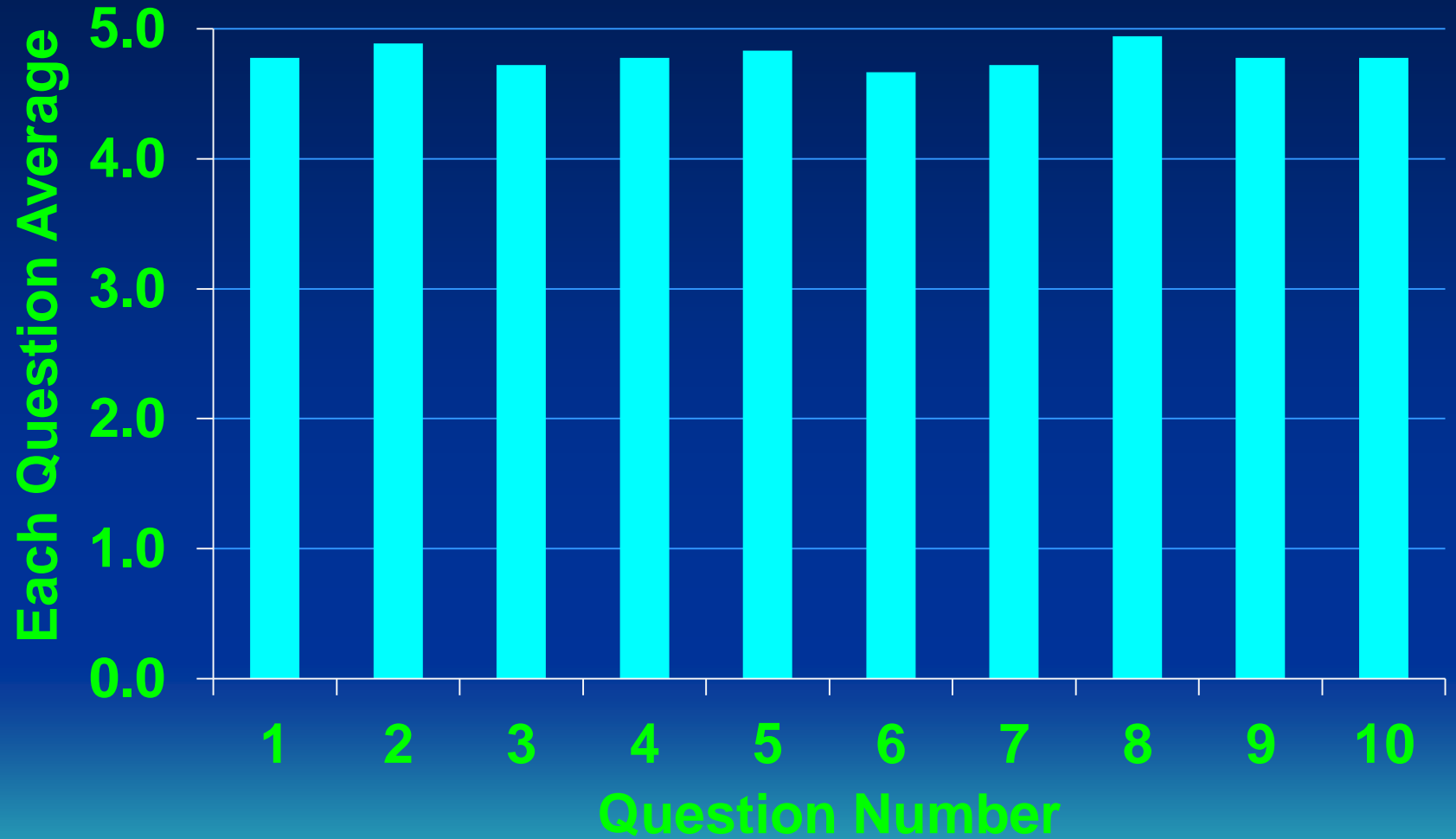
- Navigation: Home > Course > Lessons > Week 1 > Module 2
- User: Gurmukh Singh
- Section: **Module 2**  
Chapter 01, Creation of Zip Folder
- Actions: Add Content, Rearrange, Settings, Reports, Utilities, Submissions, Delete, Print, My Notes, Previous, Next
- Announcement: Assignment 01 is due on May 22, 2012 before midnight. You can drop your assignment 01 files or zip folder in DropBox: Assignment 01
- Item List:
  - Lecture Notes: Chapter 01**
  - Handout: Lab Assignment 01**
  - Handout: Lecture Assignment 01**
  - How to Create a Zip-Folder of Your Assignment Work?**
  - DropBox: Assignment 01**
- Decorative Elements: A stethoscope is positioned in the upper right, and a green apple is in the lower right.
- Footer: 508, PDA

# Items/Folders in Module 3

The screenshot shows a web browser window with the following elements:

- Browser Address Bar:** <https://fredonia.sln.su...> and [CSIT-151-01: Intro to Infor...](#)
- Navigation Menu:** File, Edit, View, Favorites, Tools, Help
- Breadcrumbs:** Home > Course > Lessons > Week 1 > Module 3
- User Profile:** Gurmukh Singh
- Module 3 Content:**
  - Chapter 02, Discussion Forum 1
  - Actions: Add Content, Rearrange, Settings, Reports, Utilities, Submissions, Delete, Print, My Notes, Previous, Next
  - Announcements:
    - Discussion Forum 1 is due on May 24, 2012 before midnight.
    - Assignment 02 is due on May 24, 2012 before midnight. You can drop your assignment 02 files or zip folder in DropBox: Assignment 02.
  - Items:
    - Lecture Notes: Chapter 02**
    - Handout: Lab Assignment 02**
    - Handout: Lecture Assignment 02**
    - What is the difference between relative, absolute and mixed cell references?** (Discussion Forum 1)
    - DropBox: Assignmnet 02**
- Decorative Elements:** A stethoscope and a green apple are overlaid on the page content.
- Bottom Left:** 508 and PDA icons.

# Student Evaluations Summer 2011



# Conclusions

- ❑ First important point is to split up entire course structure into several main modules:
  - ❑ For a two-week J-Term course; two main modules
  - ❑ For five-week summer course; five main modules
- ❑ Second important point is to give actual screen-shots of Course Map, ANGEL Nuggets used in an online course so that an instructor has a very good mental picture of how to proceed with creation of an effective course design
- ❑ Drop Boxes must be created to submit completed assignment work, quizzes/exams and projects
- ❑ Quizzes/exams must be created with Assessment Editor that provides an instantaneous access to student grades, its statistical analysis in graphical form, and thus, saving instructor's time to do manual grading of quizzes/exams [3]

# Conclusions (Contd.)

- ❑ From administration point of view, an enormous cost saving in running such program since no new infrastructure is needed to run online programs. Consequently, no strain of existing physical resources of educational institutes.
- ❑ Under current economic recession existing throughout the world, students can save a large amount of money spent on boarding and lodging by taking online courses.
- ❑ Also beneficial for students who have to commute five days a week to college and university campus in case students are to attend f2f winter and summer classes.



# References

1. M. Shively and G. Ketcham, *The ANGEL Difference: Simple, Powerful, Open*, Conference on Instructional Technologies (CIT-09), SUNY Oswego, p. 32, May 19-22 (2009); J. Gerald, M. Casile and R. Lederman, *An ANGEL Hybrid 2x2x2 Dual Case Study*, Conference on Instructional Technologies (CIT-09), SUNY Oswego, p. 38, May 19-22 (2009); L. Driskel, *ANGEL Tips & Tricks: Student Engagement- Macros, Automates and reports Make for More Effective Management*, Conference on Instructional Technologies (CIT-09), SUNY Oswego, p. 66, May 19-22 (2009); G. Ketcham, *ANGEL Administrators Collaboration Session*, Conference on Instructional Technologies (CIT-09), SUNY Oswego, p. 83, May 19-22 (2009).
2. ANGEL® 7.3 *Instructor Quickstart Guide*, ANGEL Learning Inc., Copyright © 2008; <http://www.blackboard.com/Teaching-Learning/Learn-Resources/ANGEL-Edition.aspx>