

Grants Collection

Kennesaw State University



UNIVERSITY SYSTEM
OF GEORGIA

Meng Han, Lei Li, Zhigang Li, Svetlana Peltsverger, Ming Yang,
and Guangzhi Zheng

Wireless Security



Grants Collection

Affordable Learning Georgia Grants Collections are intended to provide faculty with the frameworks to quickly implement or revise the same materials as a Textbook Transformation Grants team, along with the aims and lessons learned from project teams during the implementation process.

Each collection contains the following materials:

- **Linked Syllabus**
 - The syllabus should provide the framework for both direct implementation of the grant team's selected and created materials and the adaptation/transformation of these materials.
- **Initial Proposal**
 - The initial proposal describes the grant project's aims in detail.
- **Final Report**
 - The final report describes the outcomes of the project and any lessons learned.



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Initial Proposal

Application Details

Manage Application: Textbook Transformation Grants: Round Ten

Award Cycle: Round 10

Internal Submission Deadline: Friday, September 29, 2017

Application Title: 334

Application ID: 001886

Submitter First Name: Meng

Submitter Last Name: Han

Submitter Title: Assitant Professor

Submitter Email Address: mhan9@kennesaw.edu

Submitter Phone Number: 4049077586

Submitter Campus Role: Proposal Investigator (Primary or additional)

Applicant First Name: Meng

Applicant Last Name: Han

Co-Applicant Name(s): Lei Li

Applicant Email Address: mhan9@kennesaw.edu

Applicant Phone Number: 4049077586

Primary Appointment Title: Assitant Professor

Institution Name(s): Kennesaw State University

Submission Date: Monday, October 2, 2017

Proposal Title: 334

Proposal Category: No-Cost-to-Students Learning Materials

Are you using an OpenStax textbook?: No

Final Semester of Instruction: Fall 2018

Team Members (Name, Title, Department, Institutions if different, and email address for each):

Meng Han, Assistant Professor of Information Technology, mhan9@kennesaw.edu

Lei Li, Professor of Information Technology, lli13@kennesaw.edu

Zhigang Li, Instructional Designer & Part-Time Assistant Professor of Information Technology,

zli8@kennesaw.edu

Svetlana Peltsverger, Interim Associate Dean of the College of Computing and Software Engineering and Professor of Information Technology, speltsve@kennesaw.edu

Ming Yang, Professor of Information Technology, myang8@kennesaw.edu

Guangzhi Zheng, Associate Professor of Information Technology, gzheng@kennesaw.edu

Sponsor, (Name, Title, Department, Institution):

Department of Information Technology, Kennesaw State University

Course Names, Course Numbers and Semesters Offered:

CSE 3203 - Overview of Mobile Systems - Offered twice a year in spring & fall semesters.

IT 4323 - Data Communication and Networking - Offered three times a year in spring, summer & fall semester with multiple sections each semester.

IT 4833 - Wireless Security - Offered once a year in spring semesters.

IT 6203 - IT Design Studio - Offered twice a year in spring & fall semesters.

IT-6823 Information Security Concepts and Administration - Offered three times a year in spring, summer & fall semester with multiple sections each semester.

List the original course materials for students (including title, whether optional or required, & cost for each item): Table "Summary of Savings with No-Cost Learning Material"

Average Number of Students per Course Section: 32

Number of Course Sections Affected by Implementation in Academic Year: 19

Average Number of Course Sections Per Semester:

Table "Student Enrollment Summary & Projection"

Course	Spring 2017	Summer 2017	Fall 2017	Total	Projected 2018 Enrollment
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					Number of Sections	Total Number of students
CSE 3203	16		24	40	2	50
IT 4323	75	25	84	184	6	230
IT 4833	40			40	2	50
IT 6203	34		57	91	4	120
IT 6823	47	15	45	107	5	150
Total	212	40	210	462	19	600

Total Number of Students Affected by Implementation in Academic Year: 600

Requested Amount of Funding: \$30,000

Original per Student Cost: \$609.50

Post-Proposal Projected Student Cost: \$0.00

Projected Per Student Savings: \$609.50

Projected Total Annual Student Savings: \$74,410.50

Project Goals:

In this project, we propose to take a department-wide effort to transform the five mobile and network related courses using no-cost-to-students learning materials. This project not only aims to reduce the financial burden imposed by the high cost of textbooks but also strives to develop free and open-access learning materials that offer equivalent or better educational effectiveness than traditional textbooks.

Statement of Transformation:

As shown in the Table “Summary of Savings with No-Cost Learning Material”, the textbooks used in the five proposed mobile and network related IT courses are expensive. In fact, most textbooks used in IT mobile and network courses are costly in general. In addition, due to the fast-evolving nature of the technology field, the textbooks used in the proposed courses are updated frequently, which negatively impacts their resale value. Some textbooks do not have the latest edition available in the market (e.g., IT 4833’s textbook is from 2005, IT 6823 is from 2004, see Table “Summary of Savings with No-Cost Learning Material”). The goal of our transformation is to replace the textbook used in the proposed courses with no-cost-to-

students learning materials that offer equal or higher educational effectiveness.

The proposed transformation is an economic and viable solution for the following reasons:

Firstly, the mobile and network related learning materials are widely and readily available on the World Wide Web today and many of these resources are publicly accessible, free, or with an open license to use. These materials include open and free tutorials, books, videos, labs, test banks, software, and services. For example, the majority of the network protocols specifications are published as Request for Comments (RFC) by the Internet Engineering Task Force (IETF) and the Internet Society (ISOC), the principal technical development and standards-setting bodies for the Internet. The mobile related topics are also strongly supported by the open source communities especially from the community of Android, and many learning materials are available and open to the public. Wireless protocols such as Wi-Fi Protected Access version 2 (WPA2) are part of the IEEE 802.X group of networking protocols and their specifications are freely available on the Internet.

Secondly, Web content can better reflect the latest trends and industrial development than the traditional textbooks as technology is changing rapidly, so is the content of Web resources. Many textbooks may become outdated at the moment they are published. As a matter of fact, many faculties have to use contents from the Web as supplemental materials to the textbook. For example, IT mobile and network courses include hands-on labs where software and tools get updated frequently and the current set of textbooks are not on par with the rapid updates. Current textbooks used in the proposed courses contain links to tools or websites which may no longer be available or supported. As soon as a new version of a tool or software package is released, the instructions in a textbook become obsolete. Therefore, we need to include the latest and available open source tools to prepare hands-on labs.

Thirdly, the materials from the Web are generally more interactive. The interactive content will not only engage the students, but also improve their learning experience. For example, a student can better learn how a network protocol works through an animation or a video than a printed diagram in a textbook.

Fourthly, developing and assembling a set of learning materials ourselves allow us to better align the course contents not only with the outcomes of each course but also with the outcomes of our Information Technology program.

Lastly, our team members are well prepared for the proposed transformation. The downsides of using Web resources are that they are often disorganized, may contain inaccurate information, may be changed or deleted without notice. However, our team members are not only subject matter experts in the mobile and network fields, but also are proficient educators who on average have more than 10 years of teaching experience. We will select, organize and integrate resources from the Web and transform the information into instructional sound learning materials for the proposed courses. We also created a sustainable plan to periodically review the developed no-cost-to-student learning material. All courses in the department are reviewed every three years as part of the continuous improvement process. In addition,

several of team members successfully completed three rounds of ALG grants (round 1 award #42, round 2 #119, and round 8 #302). As part of a department effort, we had transformed 10 IT courses using no-cost-to-student learning material. Those courses were very well received by our students and saved our students more than \$200,000 in textbook cost. Building on our previous success and lessons learned, we are well positioned to continue transformation efforts and further increase the cost-saving benefits to the students in our program.

The impact of our transformation efforts will be profound. By our estimates, more than 600 students will benefit from the no-cost learning material each year. The proposed project is expected to save students \$74,410.50 in textbook cost each year. Because of the cost savings from not having to buy textbooks, students may be able to take a few more courses each year and graduate sooner. Having a series of mobile and network courses adopting no-cost-to-student material not only offers better and more consistent learning experience for students, but also makes our nationally renowned IT programs more affordable. As a result, we could recruit more students and produce more qualified IT professionals that the State of Georgia needs. Developing no-cost-to-student materials can help us better align course content with its learning outcomes and outcomes of our program, which will create the positive impact in terms of curriculum development. Moreover, the learning materials developed in this proposal will be made available to the public and can be easily adopted by other programs or intuitions who want to lower the cost of education to their students. Lastly, we believe that our experience gained in this transformation project could be beneficial to the academic community. We presented our previous ALG grant experience in two national educational conferences: Southern Association for Information Systems Conference (SAIS 2016) and ACM Special Interests Group in IT Education (SIGITE 2016). We also hosted a panel to discuss the not-cost-to-student learning material in SIGITE 2016 and will host another panel in the 14th Annual Open Education Conference in October 2017. Our presence in the national conferences greatly increased the academic community's awareness on no-cost-to-student learning material and stimulated intriguing discussions among our follow educators. We plan to continue doing so in IT academic society with the proposed transformation efforts. In summary, we believe the proposed project will have a positive impact on students' retention, progression, and graduation at program, department and institution level.

Transformation Action Plan:

With a coordinated effort, our team of investigators plans the following activities to transform all mobile and network related courses to completely use no-cost learning materials:

Research and identify no-cost readings for each of the learning modules in each course. The reading list includes both required readings and optional readings. All of these readings will be publicly accessible, free to use, or openly licensed.

Research and identify no-cost materials that can be shared across the courses.

Develop study guides and lecture notes for students' use to review course content and key learning points.

Adopt or develop all assignments, exercises and lab materials that are no cost to students to replace the ones in the textbooks.

Develop test banks to replace the ones in the textbooks.

Adopt open source or no-cost-to-student labware for students to gain hands-on experience.

Update the syllabus to include major resources and no-cost materials.

Re-develop the proposed courses in our learning management system, D2L Brightspace.

The responsibilities of each investigator are described in table "Investigator Responsibilities".

Table "Investigator Responsibilities"

Primary Investigator	Course	Responsibilities
Dr. Meng Han	IT 4323	Project lead; Subject matter expert and developer; instructor of record
Dr. Lei Li	IT 4833	Subject Matter Expert and developer; instructor of record
Dr. Guangzhi Zheng	CSE 3203	Subject Matter Expert and developer; instructor of record
Dr. Svetlana Peltsverger	IT 6203	Subject Matter Expert and developer; instructor of record
Dr. Ming Yang	IT 6823	Subject Matter Expert and developer; instructor of record
Dr. Zhigang Li	All Courses	Provide Instructional Design and Hosting Support.

All course design with the no-cost materials will be provided through D2L Brightspace for our students and on ALG website for the public access.

Quantitative & Qualitative Measures: The investigators plan to assess the effectiveness of our proposal in two ways: 1) qualitatively, we will design a survey and gather inputs from the students after they used the no-cost learning material; 2) quantitatively, we will compare students' performance data gathered from sections using traditional textbooks and sections using no-cost learning material. The investigators will collect student performance data such as pass rates on the five proposed courses between fall 2016 and summer 2017. This data will be used as a baseline for comparison of student performance in courses with alternative no cost material. The detailed assessment plan is shown in table "Assessment Plan". For each of the measurement, the investigators are going to conduct two levels of analysis: 1. Comparing them to the preset goals. Generally, 75% is the aimed passing rate in undergraduate courses and 80% in graduate courses. 2. Comparing them to those from past offerings where costly textbooks were used. The investigators will obtain the data from the sections taught in the past 2 years. Table "Assessment Plan"

Timeline:

The major milestones of the proposal are illustrated in table "Major Milestone".

Table "Major Milestone"

Milestone dates	Milestone
10/01/2017	Complete baseline gathering of statistics
11/30/2017	Complete course level materials redesign, which includes quizzes, tests, and syllabus for IT 4833. Complete course modules schedule to use the no-cost materials for CSE 3203, IT 4323, IT 6203, and IT 6823.

12/31/2017	Complete project progress report for IT 4833. Complete course modules redesign materials outline for CSE 3203, IT 4323, IT 6203, and IT 6823.
03/01/2018	Complete the development of no cost materials include all reading, lecture notes, video clips, exercises, labs, and assignments materials for CSE 3203, IT 4323, IT 6203, and IT 6823. The changes are reflected in the learning module study guides.
04/01/2018	Complete course level materials redesign materials for CSE 3203, IT 4323, IT 6203, and IT 6823 including quizzes, tests, and syllabus.
05/05/2018	Complete the course offering for IT 4833. Complete the survey data collection for IT 4833. Complete student evaluation for IT 4833.
05/20/2018	Complete assessment data collection and analysis for IT 4833. Deliver the status report for IT 4833. Compile final report for IT 4833.
06/20/2018	Based on the feedback of IT 4833, further adjust the development of CSE 3203, IT 4323, IT 6203, and IT 6823 including all reading, lecture notes, video clips, exercises, labs, and assignments materials, quizzes, tests, and syllabus.
08/01/2018	Develop a survey on the effectiveness of the no-cost materials for course CSE 3203, IT 4323, IT 6203, and IT 6823.

12/05/2018	<p>Complete the course offering for CSE 3203, IT 4323, IT 6203, and IT 6823.</p> <p>Complete the survey data collection for all offered courses.</p> <p>Complete student evaluation for all offered courses.</p>
12/15/2018	<p>Complete assessment data collection and analysis for the whole project.</p> <p>Deliver the final status report.</p> <p>Compile final report.</p>

Budget:

Funding will compensate team member's work and activity beyond normal teaching load or other job responsibilities. For each proposed course, course architects will spend approximately 80 hours to develop the no-cost learning material. The instructor of records will spend 20 hours in course assessment. Instructional support will include at least about 50 hours to assist course architects. The role for each PI and the corresponding compensation are listed as follows:

Table "Budget for Investigators Compensation"

Team Member	Role	Investigators compensation
Dr. Meng Han	IT 4323 developer & instructor	\$5,000
Dr. Lei Li	IT 4833 developer & instructor	\$5,000
Dr. Guangzhi Zheng	CSE 3203 developer & instructor	\$5,000
Dr. Svetlana Peltserger	IT 6203 developer & instructor	\$5,000
Dr. Ming Yang	IT 6823 developer & instructor	\$5,000
Dr. Zhigang Li	All courses support	\$3,000

Investigators compensation: $\$5000 \times 5 + 3,000 = \$28,000$

Travel & Other Expense: \$2,000

\$800 is budgeted for two team members to attend the Kickoff Meeting at Middle Georgia State University in Macon, GA.

An additional \$1200 is budgeted for one team member to attend the ACM Special Interests Group in IT Education (SIGITE 2018).

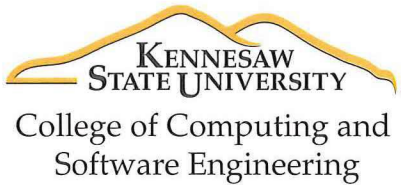
Total Budget: \$30,000

Only open source software or free software will be used in this project thus there is no additional spending on software or equipment purchasing.

Sustainability Plan:

The IT department implements a course architect system for all courses. Each course is assigned to a faculty as the course architect who is responsible for the content of the course and teaches the course regularly. All of our investigators except the instructional designer is a course architect for the corresponding courses (please see table "Investigator Responsibilities"). Our team members will develop the no-cost-to-student learning material for the proposed courses and teach the courses for the first time using the new material. As a course architect, our team members will also make sure a course is continuously taught using the developed no-cost learning material in the future semesters even the course might have a different instructor.

The IT department also has a well-established continuous course improvement plan. Each course is assessed each semester after being taught, and a course will be formally evaluated and updated every three years. A course architect is in charge of those assessment efforts. Thus, we are committed to continuously update the no-cost learning material in the proposed courses based on research, assessment results and feedback from students and alumni. As shown in their support letters, our transformation efforts also have strong support from our department chair and the dean of our college which further ensure the sustainability of our transformation efforts.



September 27, 2017

Dear Affordable Learning Georgia (ALG) Grant Reviewers,

It is my pleasure to write this letter in support of the proposal, "Connecting the World: Developing No-Cost-to-Student Learning Materials for Mobile and Network Related Information Technology Courses", submitted by Dr. Meng Han, Dr. Lei Li, Dr. Svetlana Peltsverger, Dr. Ming Yang, Dr. Guangzhi Zheng, and Dr. Zhigang Li from our Information Technology (IT) Department at Kennesaw State University.

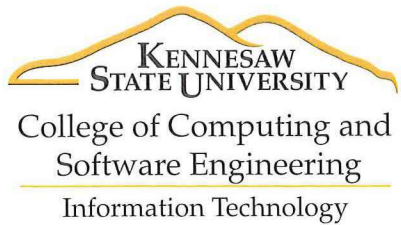
In this project, the primary investigators will work as a team to replace existing, costly textbooks in five mobile and network-related information technology courses with no-cost-to-students learning materials. Their efforts will significantly lower the cost of education for students and generate a positive impact on the retention, progression, and graduation for the College of Computing and Software Engineering. Additionally, given the rapid change of the IT field, having digital materials available to students will improve the ability to keep them updated with the latest advances in the field of mobile and network technology.

Several of the team members successfully completed three rounds of ALG grants (round 1 award #42, round 2 #119, and round 8 #302), thus the quality and success of this new project is highly likely. The investigators in this project are also designated course architects who are responsible for the development and the maintenance of the to-be-transformed courses. The no-cost-to-student's materials developed will be distributed using the course management system, Desire2Learn Brightspace. Thus, I believe the effort of this project will be sustainable over the long term and benefit students throughout Georgia.

This proposal has the support of the College of Computing and Software Engineering.

Sincerely,

Dr. Jon A. Preston
Interim Dean
College of Computing and Software Engineering
Kennesaw State University



September 27, 2017

ALG Grant Committee University System of GA
Dear Colleagues:

This letter is in support of the Proposal "Connecting the World: Developing No-Cost-to-Student Learning Materials for Mobile and Network Related Information Technology Courses" submitted from Kennesaw State University, Information Technology department faculty. As Department Chair for Information Technology, I clearly see the need for bringing down costs for our students. The ALG grants assist faculty to prepare no-cost courses that allow students to take courses without the monetary burden of expensive textbooks.

Several faculty in the Information Technology Department at Kennesaw State University have successfully carried out an ALG grant for web courses (round 1 #42) database courses (round 2 #119), and security courses (round 8 #302) in the curriculum. The current proposal addresses mobile and network related courses in the IT curriculum. The savings already realized from the previous ALG grant encouraged our faculty to develop this new ALG grant proposal to help our students save even more money.

I strongly support this proposal. This is a very sustainable proposal as we have a large Information Technology degree program. Many of our students take courses online as well as in-class. Creating the no-cost for the textbook version of our mobile and network courses will allow students for many years to realize savings from not buying textbooks for these courses.

This is a very solid proposal. All faculty participating in the previous ALG grants completed their courses and offered them successfully. I believe that this new ALG proposal will have the same student satisfaction and success that the previous ALG grants did. This new proposal will have an even larger monetary impact on our students than the previous grants. Thank you for your consideration of this proposal.

Sincerely,

Rebecca H. Rutherford, Ed.D.
Interim Assistant Dean of the College of Computing & Software Engineering,
Department Chair for Information Technology, Professor of Information Technology
brutherf@kennesaw.edu

**Affordable Learning Georgia Textbook Transformation Grants
Rounds Ten for Implementations beginning Fall Semester 2017
Running Through Fall Semester 2018**

Proposal Form and Narrative

Submitter Name	<i>Meng Han</i>
Submitter Title	<i>Assistant Professor of Information Technology</i>
Submitter Email	<i>mhan9@kennesaw.edu</i>
Submitter Phone Number	(470) 578-3801
Submitter Campus Role	<i>Primary Investigator</i>
Applicant Name	<i>Meng Han Primary Investigator/Team Lead</i>
Applicant Email	<i>mhan9@kennesaw.edu</i>
Applicant Phone Number	(470) 578-3801
Primary Appointment Title	<i>Assistant Professor of Information Technology</i>
Institution Name(s)	Kennesaw State University

Team Members	<p>Meng Han, Assistant Professor of Information Technology, mhan9@kennesaw.edu</p> <p>Lei Li, Professor of Information Technology, lli13@kennesaw.edu</p> <p>Zhigang Li, Instructional Designer & Part-Time Assistant Professor of Information Technology, zli8@kennesaw.edu</p> <p>Svetlana Peltsverger, Interim Associate Dean of the College of Computing and Software Engineering and Professor of Information Technology, speltsve@kennesaw.edu</p> <p>Ming Yang, Professor of Information Technology, myang8@kennesaw.edu</p> <p>Guangzhi Zheng, Associate Professor of Information Technology, gzheng@kennesaw.edu</p>
Sponsor, Title, Department, Institution	<i>Department of Information Technology</i>
Proposal Title	Connecting the World: Developing No-Cost-to-Student Learning Materials for Mobile and Network Related Information Technology Courses
Course Names, Course Numbers and Semesters Offered	<p><i>CSE 3203 - Overview of Mobile Systems - Offered twice a year in spring & fall semesters.</i></p> <p><i>IT 4323 - Data Communication and Networking - Offered three times a year in spring, summer & fall semester with multiple sections each semester.</i></p> <p><i>IT 4833 - Wireless Security - Offered once a year in spring semesters.</i></p> <p><i>IT 6203 - IT Design Studio - Offered twice a year in spring & fall semesters.</i></p> <p><i>IT 6823 Information Security Concepts and Administration - Offered three times a year in spring, summer & fall semester with multiple sections each semester.</i></p>

Final Semester of Instruction	<i>Fall 2018</i>				
Average Number of Students Per Course Section	32	Number of Course Sections Affected by Implementation in Academic Year	19	Total Number of Students Affected by Implementation in Academic Year	600
Award Category (pick one)	<input checked="" type="checkbox"/> No-or-Low-Cost-to-Students Learning Materials <input type="checkbox"/> OpenStax Textbooks <input type="checkbox"/> Interactive Course-Authoring Tools and Software <input type="checkbox"/> Specific Top 100 Undergraduate Courses				
List the original course materials for students (including title, whether optional or required, & cost for each item)	See Table 2 “Summary of Savings with No-Cost Learning Material”.				
Requested Amount of Funding	\$30,000				
Original Per Student Cost	\$609.50				

Post-Proposal Projected Per Student Cost	\$0.00
Projected Per Student Savings	\$609.50
Projected Total Annual Student Savings	\$74,410.50
Creation and Hosting Platforms Used	<i>Kennesaw State University D2L Brightspace</i>

Table 1. Student Enrollment Summary & Projection

Course	Spring 2017	Summer 2017	Fall 2017	Total	Projected 2018 Enrollment	
					Number of Sections	Total Number of students
CSE 3203	16		24	40	2	50
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IT 4833	40			40	2	50
IT 6203	34		57	91	4	120
IT 6823	47	15	45	107	5	150
Total	212	40	210	462	19	600

Table 2. Summary of Savings with No-Cost Learning Material

Course	Textbook Used	Cost per Student	Projected Enrollment	Projected Costs

CSE 3203	Introduction to Wireless and Mobile Systems Authors: Dharma P. Agrawal, Qing-An Zeng. Publisher: CL Engineering; 4th edition (January 1, 2015), ISBN-13: 978-1305087132	\$184.95	50	\$9,247.50
IT 4323	Data Communications and Networking, Author: Behrouz A. Forouzan. Publisher: McGraw-Hill Education; 5th edition (February 17, 2012), ISBN-13: 978-0073376226. Required.	<u>\$142.19</u>	230	\$32,703.70
IT 4833	Bulletproof Wireless Security: GSM, UMTS, 802.11, and Ad Hoc Security, Author: Praphul Chandra. Publisher: ELSEVIER 2005, ISBN: 0-7506-7746-5	\$74.95	50	\$3,747.50
IT 6203	• Enterprise Systems Integration: A Process-Oriented Approach, Author: Diogo R. Ferreira. Publisher: Springer; 2013 edition (December 4, 2013), ISBN 978-3-642-40796-3 \$79.99 Proposed new book for fall 18	\$79.99	120	\$9,598.80
IT 6823	• Introduction to Computer Security, Addison Wesley, 2004. Matt Bishop, ISBN: 0-321-24744-2.	\$127.42	150	\$19,113.00
Total:		\$609.50	600	\$74,410.50

NARRATIVE

1.1 PROJECT GOALS

In this project, we propose to take a department-wide effort to transform the five mobile and network related courses using no-cost-to-students learning material. This project not only aims to reduce the financial burden imposed by high cost of textbooks, but also strives to develop free and open-access learning materials that offer equivalent or better educational effectiveness than traditional textbooks.

1.2 STATEMENT OF TRANSFORMATION

As shown in the table 2 “Summary of Savings with No-Cost Learning Material”, the textbooks used in the five proposed mobile and network related IT courses are expensive. In fact, most textbooks used in IT mobile and network courses are

costly in general. In addition, due to the fast evolving nature of the technology field, the textbooks used in the proposed courses are updated frequently, which negatively impacts their resale value. Some textbooks do not have the latest edition available in the market (e.g., IT 4833's textbook is from 2005, IT 6823 is from 2004, see Table 2 "Summary of Savings with No-Cost Learning Material"). The goal of our transformation is to replace the textbook used in the proposed courses with no-cost-to-students learning materials that offer equal or higher educational effectiveness.

The proposed transformation is an economic and viable solution for the following reasons:

Firstly, the mobile and network related learning materials are widely and readily available on the World Wide Web today and many of these resources are publicly accessible, free, or with an open license to use. These materials include open and free tutorials, books, videos, labs, test banks, software, and services. For example, the majority of the network protocols specifications are published as Request for Comments (RFC) by the Internet Engineering Task Force (IETF) and the Internet Society (ISOC), the principal technical development and standards-setting bodies for the Internet. The mobile related topics are also strongly supported by the open source communities especially from the community of Android, and many learning materials are available and open to the public. Wireless protocols such as Wi-Fi Protected Access version 2 (WPA2) are part of the IEEE 802.X group of networking protocols and their specifications are freely available on the Internet.

Secondly, Web content can better reflect the latest trends and industrial development than the traditional textbooks as technology is changing rapidly, so is the content of Web resources. Many textbooks may become outdated at the moment they are published. As a matter of fact, many faculties have to use contents from the Web as supplemental materials to the textbook. For example, IT mobile and network courses include hands-on labs where software and tools get updated frequently and the current set of textbooks are not on par with the rapid updates. Current textbooks used in the proposed courses contain links to tools or websites which may no longer be available or supported. As soon as a new version of a tool or software package is released, the instructions in a textbook become obsolete. Therefore, we need to include the latest and available open source tools to prepare hands-on labs.

Thirdly, the materials from the Web are generally more interactive. The interactive content will not only engage the students, but also improve their learning experience. For example, a student can better learn how a network protocol works through an animation or a video than a printed diagram in a textbook.

Fourthly, developing and assembling a set of learning materials ourselves allow us to better align the course contents not only with the outcomes of each course, but also with the outcomes of our Information Technology program.

Lastly, our team members are well prepared for the proposed transformation. The downsides of using Web resources are that they are often disorganized, may contain inaccurate information, may be changed or deleted without notices. However, our team members are not only subject matter experts in the mobile and network fields, but also are proficient educators who on average have more than 10 years of teaching

experience. We will select, organize and integrate resources from the Web and transform the information into instructional sound learning materials for the proposed courses. We also created a sustainable plan to periodically review the developed no-cost-to-student learning material. All courses in the department are reviewed every three years as part of the continuous improvement process. In addition, several of team members successfully completed three rounds of ALG grants (round 1 award #42, round 2 #119, and round 8 #302). As part of a department effort, we had transformed 10 IT courses using no-cost-to-student learning material. Those courses were very well received by our students and saved our students more than \$200,000 in textbook cost. Building on our previous success and lessons learned, we are well positioned to continue transformation efforts and further increase the cost-saving benefits to the students in our program.

1.3. Impact of the Transformation

The impact of our transformation efforts will be profound. By our estimates, more than 600 students will benefit from the no-cost learning material each year. The proposed project is expected to save students \$74,410.50 in textbook cost each year. Because of the cost savings from not having to buy textbooks, students may be able to take a few more courses each year and graduate sooner. Having a series of mobile and network courses adopting no-cost-to-student material not only offers better and more consistent learning experience for students, but also makes our nationally renowned IT programs more affordable. As a result, we could recruit more students and produce more qualified IT professionals that the State of Georgia needs. Developing no-cost-to-student materials can help us better align course content with its learning outcomes and outcomes of our program, which will create positive impact in term of curriculum development. Moreover, the learning materials developed in this proposal will be made available to the public and can be easily adopted by other programs or intuitions who want to lower the cost of education to their students. Lastly, we believe that our experience gained in this transformation project could be beneficial to the academic community. We presented our previous ALG grant experience in two national educational conferences: Southern Association for Information Systems Conference (SAIS 2016) and ACM Special Interests Group in IT Education (SIGITE 2016). We also hosted a panel to discuss the not-cost-to-student learning material in SIGITE 2016 and will host another panel in the 14th Annual Open Education Conference in October 2017. Our presence in the national conferences greatly increased the academic community's awareness on no-cost-to-student learning material and stimulated intriguing discussions among our follow educators. We plan to continue doing so in IT academic society with the proposed transformation efforts. In summary, we believe the proposed project will have a positive impact in students' retention, progression, and graduation at program, department and institution level.

1.4 TRANSFORMATION ACTION PLAN

With a coordinated effort, our team of investigators plan the following activities to transform all mobile and network related courses to completely use no-cost learning materials:

- Research and identify no cost readings for each of the learning modules in each course. The reading list includes both required readings and optional readings. All of these readings will be publicly accessible, free to use, or openly licensed.
- Research and identify no cost materials that can be shared across the courses.
- Develop study guides and lecture notes for students' use to review course content and key learning points.
- Adopt or develop all assignments, exercises and lab materials that are no cost to students to replace the ones in the textbooks.
- Develop test banks to replace the ones in the textbooks.
- Adopt open source or no-cost-to-student labware for students to gain hands-on experience.
- Update the syllabus to include major resources and no cost materials.
- Re-develop the proposed courses in our learning management system, D2L Brightspace.

The responsibilities of each investigator is described in table 3 “Investigator Responsibilities”.

Table 3. Investigator Responsibilities

Primary Investigator	Course	Responsibilities
Dr. Meng Han	IT 4323	Project lead; Subject matter expert and developer; instructor of record
Dr. Lei Li	IT 4833	Subject Matter Expert and developer; instructor of record
Dr. Guangzhi Zheng	CSE 3203	Subject Matter Expert and developer; instructor of record
Dr. Svetlana Peltsverger	IT 6203	Subject Matter Expert and developer; instructor of record
Dr. Ming Yang	IT 6823	Subject Matter Expert and developer; instructor of record
Dr. Zhigang Li	All Courses	Provide Instructional Design and Hosting Support.

All course design with the no-cost materials will be provided through D2L Brightspace for our students and on ALG website for the public access.

1.4 QUANTITATIVE AND QUALITATIVE MEASURES

The investigators plan to assess the effectiveness of our proposal in two ways: 1) qualitatively, we will design a survey and gather inputs from the students after they used the no-cost learning material; 2) quantitatively, we will compare students' performance data gathered from sections using traditional textbooks and sections using no-cost learning material.

The investigators will collect student performance data such as pass rates on the five proposed courses between fall 2016 and summer 2017. This data will be used as a baseline for comparison of student performance in courses with alternative no cost material. The detailed assessment plan is shown in table 4.

For each of the measurement, the investigators are going to conduct two levels of analysis:

1. Comparing them to the preset goals. Generally, 75% is the aimed passing rate in undergraduate courses and 80% in graduate courses.
2. Comparing them to those from past offerings where costly textbooks were used. The investigators will obtain the data from the sections taught in the past 2 years.

Table 4. Assessment Plan

Source	Description
Student performance measures	This data is from the overall class performance based on the grading of student works. Metrics include: <ul style="list-style-type: none"> • Class average, grades distribution, pass rate for each grading item. • Overall letter grades distribution, pass rate, withdraw rate, and fail rate. • Percentage of students meeting or exceeding learning outcomes
Specific survey on no-cost learning materials.	The survey will be distributed at the end of the semester to collect student feedback. It consists of a mixture of quantitative and qualitative measures including: <ul style="list-style-type: none"> • Student perception and attitude toward no cost materials • Quantitative ratings of the no cost materials used in this course • Qualitative comments and suggestions
Student evaluation of the instructor	Formal student evaluation of the instructor can also provide information about teaching effectiveness using no cost materials. This evaluation is based on standardized forms for every course.

1.5 TIMELINE

The major milestones of the proposal are illustrated in table 5.

Table 5. Major Milestone

Milestone dates	Milestone
10/01/2017	Complete baseline gathering of statistics
11/30/2017	Complete course level materials redesign, which includes quizzes, tests, and syllabus for IT 4833. Complete course modules schedule to use the no cost materials for CSE 3203, IT 4323, IT 6203, and IT 6823.
12/31/2017	Complete project progress report for IT 4833. Complete course modules redesign materials outline for CSE 3203, IT 4323, IT 6203, and IT 6823.
03/01/2018	Complete the development of no cost materials include all reading, lecture notes, video clips, exercises, labs, and assignments materials for CSE 3203, IT 4323, IT 6203, and IT 6823. The changes are reflected in the learning module study guides.
04/01/2018	Complete course level materials redesign materials for CSE 3203, IT 4323, IT 6203, and IT 6823 including quizzes, tests, and syllabus.
05/05/2018	Complete the course offering for IT 4833. Complete the survey data collection for IT 4833. Complete student evaluation for IT 4833.
05/20/2018	Complete assessment data collection and analysis for IT 4833. Deliver the status report for IT 4833. Compile final report for IT 4833.
06/20/2018	Based on the feedback of IT 4833, further adjust the development of CSE 3203, IT 4323, IT 6203, and IT 6823 including all reading, lecture notes, video clips, exercises, labs, and assignments materials, quizzes, tests, and syllabus.
08/01/2018	Develop a survey on effectiveness of the no cost materials for course CSE 3203, IT 4323, IT 6203, and IT 6823.
12/05/2018	Complete the course offering for CSE 3203, IT 4323, IT 6203, and IT 6823. Complete the survey data collection for all offered courses. Complete student evaluation for all offered courses.
12/15/2018	Complete assessment data collection and analysis for the whole project. Deliver the final status report. Compile final report.

1.6 BUDGET

Funding will compensate team member's work and activity beyond normal teaching load or other job responsibilities. For each proposed course, course architects will spend approximately 80 hours to develop the no-cost learning material. The instructor of records will spend 20 hours in course assessment. Instructional support will include at least about 50 hours to assist course architects. The role for each PI and the corresponding compensation are listed

as follows:

Table 6. Budget for Investigators Compensation

Team Member	Role	Investigators compensation
Dr. Meng Han	IT 4323 developer & instructor	\$5,000
Dr. Lei Li	IT 4833 developer & instructor	\$5,000
Dr. Guangzhi Zheng	CSE 3203 developer & instructor	\$5,000
Dr. Svetlana Peltsverger	IT 6203 developer & instructor	\$5,000
Dr. Ming Yang	IT 6823 developer & instructor	\$5,000
Dr. Zhigang Li	All courses support	\$3,000

Investigators compensation: $\$5000 \times 5 + 3,000 = \$28,000$

Travel & Other Expense: \$2,000

- (1) \$800 is budgeted for two team members to attend the Kickoff Meeting at Middle Georgia State University in Macon, GA.
- (2) An additional \$1200 is budgeted for one team member to attend the ACM Special Interests Group in IT Education (SIGITE 2018).

Total Budget: \$30,000

Only open source software or free software will be used in this project thus there is no additional spending on software or equipment purchasing.

1.7 SUSTAINABILITY PLAN

The IT department implements a course architect system for all courses. Each course is assigned to a faculty as the course architect who is responsible for the content of the course and teaches the course regularly. All of our investigators except the instructional designer is a course architecture for the corresponding courses (please see table 3). Our team members will develop the no-cost-to-student learning material for the proposed courses and teach the courses for the first time using the new material. As a course architect, our team members will also make sure a course is continuously taught using the developed no-cost learning material in the future semesters even the course might have a different instructor.

The IT department also have well established continuous course improvement plan. Each course is assessed each semester after being taught, and a course will be formally evaluated and updated every three years. A course architect is in charge of those assessment efforts. Thus, we are committed to continuously update the no-cost learning material in the proposed courses based on research, assessment results and feedback from students and alumni. As shown in their support letters, our transformation efforts also have strong supports from our

department chair and the dean of our college which further ensure the sustainability of our transformation efforts.

1.8 REFERENCES & ATTACHMENTS

Two letters of support from the Dean of College of Computing and Software Engineering and the chair of Information Technology Department are attached.

Syllabus

IT 4833 Wireless Security Course Syllabus

Instructor

Lei Li, Ph.D. Professor

E-mail: lli@kennesaw.edu

Office Phone: 470-578-3915

Office Location: Marietta Campus, Atrium Building J364

Office Hours: and by appointment

Virtual Office Hours: by D2L email or make an appointment.

Course Communication

Effective communication is the key to the success of both online and hybrid classes. Please use following guideline for class communication.

- **Email me or text me** (706-225-9219, don't call this number unless it's emergency). Email is the best way to reach me. Use D2L email if possible. My KSU email (lli@kennesaw.edu) should only be used when you don't have access to D2L site. Your emails and texts are GUARANTEED to be replied WITHIN 12 HOURS.
- When email me using accounts other than D2L email, put the course and section number in the subject line. Emails without proper subject line will not be replied.
- Avoid using personal email to contact me. Sensitive information (such as your grades) can ONLY be sent to D2L email or KSU email account.

Course Description

Classroom & Meeting Time:

TBD

Credit hours: 3 Class Hours 0 Laboratory Hours 3 Credit Hours

Prerequisites: IT 4823 or CS 3502

Required Textbook

No textbook is required. Learning material will be provided through D2L course website.

Catalog Description

This course covers methods and techniques to secure wireless networks against threats and attacks. The topics include Security and Cryptography, Network Security Protocols, Security and Layered Architecture, Voice-Oriented Wireless Networks, Data-Oriented Wireless Networks, Security in Traditional Wireless Networks, Security in Wireless LAN, Security in Wireless Ad Hoc Network, Special Topic: Mobile Security.

Course Objectives

By the end of this course, you should be able to:

- Describe the differences between wireless security and wired security
- Build the working knowledge of security building blocks so that it can be applied to solve the problems of designing security solutions in wireless network systems
- Acquire the fundamental understanding of two main-stream approaches (i.e., data-oriented and voice-oriented) taken by wireless security systems
- Master to learn at least one of advanced wireless network security systems in depth, and enhance the skills of enabling and configuring a wireless network system



Minimum Technical Requirements

- This class uses D2L as hosting site. Run a [system check](#) to ensure your computer work with D2L. Check out UITS D2L training: <http://uits.kennesaw.edu/support/d2ltraining.php>
- Internet Connection. A high-speed Internet connection such as DSL or cable Internet access is highly recommended. You can also use computer labs on campus to complete the coursework.

Minimum Technical Skills Requirement

Students entering this course are expected to have following technical skills:

- General computer literacy. Students should be proficient with the basic functions of standard software packages (e.g., MS Word, MS Excel, MS PowerPoint, and Adobe Reader) and standard players (e.g., QuickTime, Windows Media Player). These programs will need to be accessible to students through home use or other computer access. A list of primers on many of these technologies is available at https://apps.kennesaw.edu/portal/prod/app_uni_cdoc_publ/documents/
- A working knowledge of the D2L learning management system is required for participation in online courses.
- A working knowledge of Linux operating system preferred, but not required.

Course Organization

For the online section and there is no scheduled face-to-face meetings. For the on-campus section, we meet twice a week. Regardless the format of class, the content of this course is organized by weekly modules. Each weekly module starts on Monday and ends on Sunday. The weekly module will be available to students one week ahead of the time. A weekly unit usually includes followings items.

1. A study guide - an overview of what are covered, learning objectives and a to-do-list.
2. Assigned readings from the textbook and supplemental material such as PowerPoint slides;
3. Information of due items such as quizzes, discussions and projects. All items are usually due on Sunday 11:59pm. And the due date may change during the course of the semester. Always refer to course calendar in the D2L course site for accurate due date.

Grading

Grading items	Weight
Discussions & Quizzes	20%
Assignments	20%
Team project	20%
Midterm Exam	20%
Final Exam	20%
Total	100%

Grade Conversion: A: (90-100), B: (80-89), C: (70-79), D: (60-69), F: (0-59)

Grade Indicator: this is a special grading item in the grade book. It summarizes your overall grade up to date. The indicator will be updated after each major assignment/exam grade release. Always be aware of your grade indicator.

Quizzes, Projects & Exams Policy

- All projects **MUST** be submitted through D2L (<https://kennesaw.view.usg.edu/>) course website by the deadline. Email submission will **NOT** be accepted. Any assignment that is less than 24 hours late is subject to 10% penalty. Any assignment that is more than 24 hours late will **NOT** be accepted.
- All quizzes and exams **MUST** be completed on D2L website by the deadline. The quizzes exams can't be opened/submitted after the deadline.
- Team projects – students will work in groups (4 or 5 people per group) on two team projects throughout the semester.

- If you must miss an exam due to illness, you must e-mail or call me *before* the scheduled time. Failure to notify the instructor prior to the scheduled time will produce an automatic zero for the exam. **NO makeup test except for emergencies with proof (e.g. doctor’s slip)**

Proctored Exam

The final exam of this course must be proctored exam. 1) For hybrid section, students can take the exam at KSU scheduled time at KSU campus. Due to the limited number of seats, online students must have the instructor's approval if they wish to use this option; 2) Online students take the exam at a scheduled time at <http://www.proctoru.com/> Note that it requires registration with proctorU.com, scheduling the exam and a payment of a nominal fee for this service, for which the student will be responsible. PLEASE CONTACT THE INSTRUCTOR ASAP IF YOU HAVE ANY QUESTIONS.

Course Schedule

Below is an outline of the content and activities in each module of the course. Course schedule is tentative and subject to change. Use D2L calendar for accurate due dates of grading items.

Week	Date	Units/Chapters	Tests/Assignments
1	1/8 – 1/14	Course Orientation LM1 – The Evolution of Wireless Network	Introduction discussion Discussion 1
2	1/15 – 1/21	LM2 – Information Security Essentials	Assignment 1
3	1/22 – 1/28	LM3 – WLAN Overview	Quiz 1
4	1/29 – 2/4	LM4 – WLAN Threats & Vulnerabilities	Discussion 2
5 & 6	2/5 – 2/18	LM5 – WLAN Security	Quiz 2, Assignment 2
7	2/19 – 2/25	Midterm Exam	
8	2/26 – 3/4	LM6 - WLAN Security Tools 2/28 – Last day to withdraw without academic penalty.	Assignment 3
9	3/5 – 3/11	LM7 – Mobile Network Overview	Discussion 3
10	3/12 – 3/18	LM8 – Cellular Network Security	Quiz 3
11	3/19 – 3/25	LM9 – Mobile Security Threats & Vulnerabilities	Assignment 4
12	3/26 - 4/1	LM10 – Mobile Devices Security	Discussion 4, Quiz 4
13	4/2 – 4/8	Spring break – no class	
14	4/9 – 4/15	LM11 – Wireless Security Auditing & Risk Analysis	Discussion 5
15 & 16	4/16 – 4/29	Team Project	
17	4/30 – 5/6	4/30 – last day of class Final Exam (TBD)	

Note: the schedule is tentative and subject to change. ALWAYS use the deadline in the D2L course calendar as the accurate deadline for the due items.

Course Expectations

Student Responsibility

For this online class, you should expect to spend seven to eight hours each week on coursework:

- Check KSU email regularly;
- Login D2L course website frequently to access the course material (at least every other day);
- Follow the weekly study guide in the learning module;
- Study the assigned material such as virtual lectures, textbook chapters and the PowerPoint slides;
- Complete assigned quiz/assignment/discussion/project on time.

Tips for Effective Online Learning

For an online class, students can really enjoy the benefits of learning at your own pace and at the place of your choice. Below are some tips for effective online learning.

- **Check D2L course website frequently.** It's recommended that students should login D2L course site **AT LEAST** every other day. Always be aware of current status of the course. Take advantage of the posted learning material such as recorded lectures.
- **Work with the instructor closely.** If you have any question, contact the instructor immediately. You can either email or text me and your message is guaranteed to be replied within 12 hours.
- **Start your work early.** If you can start a task early, don't start late. Assuming you spend the same amount of time completing the task, starting later will be much more stressful than starting early. Never start until the last minute! You'll have no turnaround time if you need help or something happens.
- **Keep up with the work.** Don't fall behind. If you do, contact the instructor immediately for what you need to do. The instructor may also contact you if he is concerned. Respond to the instructor's inquiry promptly.

Class Communication Rules

In any classroom setting there are communication rules in place that encourage students to respect others and their opinions. In an online environment, the do's and don'ts of online communication are referred to as **Netiquette**. As a student in my course you should:

- Be sensitive and reflective to what others are saying.
- **Avoid typing in all capitals** because it is difficult to read and is considered the electronic version of 'shouting'.
- Don't flame - These are outbursts of extreme emotion or opinion.
- Think before you hit the post (enter/reply) button. You can't take it back! Don't use offensive language.
- Use clear subject lines.
- Don't use abbreviations or acronyms unless the entire class knows them. Be forgiving. Anyone can make a mistake.
- Keep the dialog collegial and professional, humor is difficult to convey in an online environment.
- Always **assume good intent** and **respond accordingly**. If you are unsure of or annoyed by a message, wait 24 hours before responding.

Policies

Accessibility Statement

- The accessibility statement of the learning management system of this course, Desire to Learn, is available at <https://www.d2l.com/accessibility/>
- Android Studio accessibility statement: <https://developer.android.com/studio/intro/accessibility.html>
- Wireshark provide an accessibility Toolkit allowing accessibility technologies to interact with a graphical user interface. More information is available at: https://www.wireshark.org/docs/wsdg_html/

Privacy Statement

The privacy policy of the learning management system of this course, Desire to Learn, is available at: <https://www.d2l.com/legal/privacy/>

Attendance Policy

Attendance and participation in class are expected. If you have any problems with attendance (or something else), contact me **BEFORE** they become a problem.

The instructor is required to file an engagement report by **[date to be determined]**. Students who never login

D2L course web site or only complete little to none course work will be considered as “**NOT ENGAGED STUDENT**”. Instructor will send an email to those students for verification before file the report. Not engaged students will be **DROPPED** from the class

Academic Honesty

Every KSU student is responsible for upholding the provisions of the Student Code of Conduct, as published in the Undergraduate and Graduate Catalogs. Section II of the Student Code of Conduct addresses the university’s policy on academic honesty, including provisions regarding plagiarism and cheating, unauthorized access to university materials, misrepresentation/falsification of university records or academic work, malicious removal, retention, or destruction of library materials, malicious/intentional misuse of computer facilities and/or services, and misuse of student identification cards. Incidents of alleged academic misconduct will be handled through the established procedures of the Department of Student Conduct and Academic Integrity (SCAI), which includes either an “informal” resolution by a faculty member, resulting in a grade adjustment, or a formal hearing procedure, which may subject a student to the Code of Conduct’s minimum one semester suspension requirement. See also <http://www.kennesaw.edu/scai/content/ksu-student-code-conduct>.

Students are encouraged to study together and to work together on class assignments and lab exercises; however, the provisions of the STUDENT CONDUCT REGULATIONS, II. Academic Honesty, KSC Undergraduate Catalog will be strictly enforced in this class. Examples of cooperation are **OK**: talking with someone about approaches to the assignment, discussing a particular problem that you are having.

- Examples of cooperation are **NOT OK**: taking someone else's assignment and modifying it, examining someone else's solution in detail.
- Any cases involving suspected academic dishonesty result in a grade of **ZERO** for the assignment. This penalty applies to all students involved.

Committing plagiarism is considered an act of academic dishonesty and will be taken very seriously. Any instances where academic dishonesty is suspected will result in an automatic grade of a zero for all students involved. Further disciplinary action may be taken such as suspension or expulsion from the University.

Grade Appeals and Student Complaints

KSU desires to resolve student grievances, complaints and concerns in an expeditious, fair and amicable manner. For complaints regarding this course, please contact the professor. If the issue is not resolved, contact the department chair.

Withdrawal Policy

The last day to withdraw without academic penalty Wednesday **10/5/2016**. Ceasing to attend class or oral notice thereof DOES NOT constitute official withdrawal from the course. Students who simply stop attending classes without officially withdrawing usually are assigned failing grades. Students wishing to withdraw after the scheduled change period (add/drop) must obtain and complete a withdrawal form from the Academic Services Department in the Registrar’s Office.

Enrollment Policy

Only those students who are enrolled in the class may attend lectures, receive assignments, take quizzes and exams, and receive a grade in the class. If a student is administratively withdrawn from this course, they will not be permitted to attend class nor will they receive any grade for the class.

Electronic Devices

In order to minimize the level of distraction, all beepers and cellular phones must be on quiet mode during class meeting times. Students who wish to use a computer/PDA for note taking need prior approval of the instructor since key clicks and other noises can distract other students. Recording of lectures by any method requires prior approval of the instructor. Students using a laptop in class should not check their email, browse the web, or in other way detract from the focus of the class.

Reasonable Accommodations

Students with qualifying disabilities under the Americans with Disabilities Act (ADA) and/or Section 504 of the Rehabilitation Act who require “reasonable accommodation(s)” to complete the course may request those from Office of Student Disability Services. Students requiring such accommodations are required to work with the University’s Office of Student Disability Services not individual faculty members or academic departments. A student anticipating a need for accommodation, must submit documentation requesting an accommodation in a timely fashion to permit time for a determination prior to submitting assignments or taking course quizzes or exams. Students may not request retroactive accommodation. Students should contact the office as soon as possible in the term for which they are seeking accommodations. Student Disability Services is located in the Carmichael Student Center in Suite 267. For more information, please call 470-578-2666 or visit the Student Disabilities Services websites at

www.kennesaw.edu/stu_dev/sds

http://www.kennesaw.edu/stu_dev/dsss/dsss.html

Student Privacy (FERPA)

Students have certain rights to privacy. <http://registrar.kennesaw.edu/resources/ferpa.php>

The University’s online learning system and email system are designed to prevent unauthorized individuals from gaining access to sensitive information or information protected by federal or state law. We will communicate regarding course matters through the University’s designated technology learning system or Kennesaw state email system.

KSU Sexual Misconduct Policy & Ethics Statement

KSU will not tolerate sexual misconduct or sexually exploitative or harassing behavior of any kind.

<https://policy.kennesaw.edu/content/sexual-misconduct-policy>.

You are expected to respect religious, cultural, and gender differences.

Classroom Behavior

Students are reminded to conduct themselves in accordance with the Student Code of Conduct, as published in the Undergraduate and Graduate Catalogs. Every KSU student is responsible for upholding the provision. Students who are in violation of KSU policy will be asked to leave the classroom and may be subject to disciplinary action by the University.

Reference Requirement

When you quote or base your ideas on other people’s work (e.g., from articles, journals, magazines, books, websites, etc.) in assignments or discussions, you MUST cite the source you used. When you direct quote, you must put others’ words in quotation marks and cite the source(s). When reading that source contributed to the ideas presented in your paper, you must give the authors proper credit.

Students are recommended to use APA style for their references.

- APA style guide: <http://owl.english.purdue.edu/owl/resource/560/01/>

Student Course Evaluation:

A standard questionnaire (described below) will be administered during the last two weeks of the semester in all classes. Additional questions developed by the college or instructor(s) may be included as well. It is important that each student provide meaningful feedback to the instructor(s) so that changes can be made in the course to continually improve its effectiveness. We value student feedback about the course, our teaching styles, and course materials, so as to improve our teaching and your learning. At a minimum, the following two questions will be asked: 1) Identify the aspects of the course that most contributed to your learning (include examples of specific materials, exercises and/or the faculty member's approach to teaching and mentoring), and 2) Identify the aspects of the course, if any, that might be improved (include examples of specific materials, exercises and/or the faculty member's approach to teaching and mentoring).

Helpful Resources

Writing Center

The KSU Writing Center helps students in all majors improve their writing. Experienced, friendly writing assistants help with topic development, revision, research, documentation, grammar, and more. For more information or to make an appointment, visit writingcenter.kennesaw.edu or stop by English Building, Room 242 (Kennesaw campus) or Johnson Library, Room 121 (Marietta campus).

Library

The KSU Library System assists all students, faculty and staff with their research, including using library databases to find articles, accessing books and other materials in our catalog, and for specialized research needs. Librarians are available for in-person walk-up assistance at library help desks, one-on-one research appointments, and 24x7 via library chat. For more information on library locations, hours, and how to access our services please visit <http://library.kennesaw.edu/>

Student Email and Web Account Access:

KSU uses a central authentication server that will allow one username and password to be used by all KSU users to access an increasing variety of applications (email, WebCT etc.) This unified network identification is referred to as your "NetID". The source for university-provided email and web space for students is located at <http://students.kennesaw.edu>. Students have access to this system once they have established their NetID. This system will provide email service through a web based interface.

How to Activate your NetID:

To activate your NetID go to <http://netid.kennesaw.edu> and click on the "Sign up Now!" link. You will be asked to provide information to verify your identity and set your password. This password will only be for NetID enabled applications.

How to Look Up a NetID:

After you have activated your NetID, you can look up other users by logging into <http://netid.kennesaw.edu> and clicking on Directory Search.

How to Send Email:

Your NetID in combination with the new email address would look like netid@students.kennesaw.edu.

Web Address:

For student web address, your NETID in combination with the new server address would look like <http://students.kennesaw.edu/~netid>. If you have problems please call the Service Desk at ext. 6999 or e-mail service@kennesaw.edu.

Owl Printing System:

The Owl Print system (student network printing/copying solution) is in place in the KSU library as well as all the open labs and lab/electronic classroom combinations across campus. Students must have an Owl Print card to use printing/copying services.

Other Student Resources

For issues with technical difficulties, please contact the **Student Helpdesk**:

- Email: studenthelpdesk@kennesaw.edu
- Call: 470-578-3555

Additional Technology Resources

- [Student Service Desk and Help Center](#)
- [Browser Checker](#)
- [USG Desire2Learn Help Center](#)

- [ITS Documentation Center](#)
- [Check Service Outages](#)
- [Maintenance Schedule](#)

Academic Resources

- [Academic Tutoring Services](#)
- [Disability Resources](#)
- [ESL Study and Tutorial Center](#)
- [Library](#)
- [The Writing Center](#)

Student Support and Wellness Resources

- [Career Services Center](#)
- [Counseling and Psychological Services](#)

Work Cited

- The learning material used in this course is based on the textbook. The source of other external learning material is clearly listed in the D2L course site.
- The course policies list in this syllabus are cited from Kennesaw State University student handbook: <http://catalog.kennesaw.edu/content.php?navoid=2481&catoid=32>
- There is reference requirement for students' work. APA citation style is recommended. Check out Policy section of the syllabus for details.

Final Report

Affordable Learning Georgia Textbook Transformation Grants

Final Report

To submit your Final Report, go to the Final Report submission page on the ALG website:

http://affordablelearninggeorgia.org/site/final_report_submission

Final report submission requires four files:

- This completed narrative document
- Syllabus or syllabi
 - (if multiple files, compress into one .zip folder)
- Qualitative/Quantitative Measures data files
 - (if multiple files, compress into one .zip folder)
- Photo of your team or a class of your students w/ at least one team member, minimum resolution 800x600px
 - (nearly all smartphones take photos larger than this size by default)

Follow the instructions on the webpage for uploading your documents. Based on receipt of this report, ALG will process the final payment for your grant. ALG will follow up in the future with post-project grantee surveys and may also request your participation in a publication, presentation, or other event.

General Information

Date: 12/18/2018

Grant Round: 10

Grant Number: 334

Institution Name(s): Kennesaw State University

Project Lead: Dr. Meng Han

Team Members (Name, Title, Department, Institutions if different, and email address for each):

Meng Han, Assistant Professor of Information Technology, mhan9@kennesaw.edu

Lei Li, Professor of Information Technology, lli13@kennesaw.edu

Zhigang Li, Instructional Designer & Part-Time Assistant Professor of Information Technology, zli8@kennesaw.edu

Svetlana Peltsverger, Interim Associate Dean of the College of Computing and Software Engineering and Professor of Information Technology, speltsve@kennesaw.edu

Ming Yang, Professor of Information Technology, myang8@kennesaw.edu

Guangzhi Zheng, Associate Professor of Information Technology, gzheng@kennesaw.edu

Course Name(s) and Course Numbers:

- CSE 3203 - Overview of Mobile Systems - Offered *twice a year in spring & fall semesters*.
- IT 4323 - Data Communication and Networking - Offered three times a year in spring, summer & fall semester with multiple sections each semester.
- IT 4833 - Wireless Security - Offered once a year in spring semesters.
- IT 6203 - IT Design Studio - Offered twice a year in spring & fall semesters.
- IT 6823 Information Security Concepts and Administration - Offered three times a year in spring, summer & fall semester with multiple sections each semester.

Semester Project Began: Spring 2018

Final Semester of Implementation: Fall 2018

Total Number of Students Affected During Project:

Course	Number of sections	Students in each section	Total students affected
CSE 3203	1	47	47
IT 4323	4	15, 29, 29, 44	117
IT 4833	2	20, 27	47
IT 6203	1	19	19
IT 6823	2	34, 26	60
Total	10		290

1. Narrative

A. Describe the key outcomes, whether positive, negative, or interesting, of your project. Include:

Our transformation effort is very successful. In this project, we have transformed five courses using no-cost-to-student learning material. Ten sections and total number of 290 students have been impacted. Students’ opinions on Learning material we created are overwhelmingly positive. Our assessment data shows that, in majority of the section where the no-cost learning material were implemented, students’ performance is either neutral or better comparing to students’ performance in previously taught sections using textbooks.

From the instructors’ perspectives, collecting and organizing the learning material ourselves not only enable us to better respond to dynamic nature of the information technology field, but also give us the flexibility to customize the course content to better serve our students. On the other side, the transformation activities require significant efforts and time commitment from the faculty to collect, organize, create, and maintain no-cost learning material that offers equivalent learning experience as the textbooks. Our transformative efforts in replacing textbooks in the proposed courses will not happen without the strong supports from ALG grant.

With our sustainability plan, the no-cost learning material will be continually used and hundreds and thousands of students from Kennesaw State University will enjoy the cost savings and enhanced learning experience in the future.

B. Describe lessons learned, including any things you would do differently next time.

Below are the lessons learned from the members of our project team.

Dr. Meng Han on IT 4323. The software tools keep changing fast, for example, the Wireshark got its latest version recently. Lesson learned is to keep checking on tools for update and revise instructions and screenshots accordingly. Also, the 5G is coming, more materials in the subject related to latest 5G should also be updated more frequently.

Dr. Lei Li on IT 4833. Wireless security is becoming more and more important in the IT domain, and the latest attacks and defends are also developing very fast. The last material will help the students a lot for the understanding, but in another aspect more efforts are very necessary from the instructor.

Dr. Ming Yang on IT 6823. The course was mainly organized and developed by D2L and offered online to student. It may provide other way for the materials if use the open public available environment for the initial development.

2. Quotes

- Provide three quotes from students evaluating their experience with the no-cost learning materials.
 - 1) “It was great, a textbook would have just been an unnecessary expenditure and wouldn't have helped at all over what we were provided. The provided material more than met my needs.”
– IT 4833
 - 2) “Not utilizing a book makes it a lot easier to read the material provided from professors and learn the basic concepts of the class. Having the book at hand on the other hand is beneficial as well because you can learn the material in depth but many students don't have the patience or time to read the entire book which consist of too much information that will probably not be retained by the students. So there are pros and cons but in my opinion I believe the no-book requirement makes it easier for us students to learn what is deemed necessary by the professors.”
– IT 4323
 - 3) “Since design studio is mixture of multiple software; using no-cost material would be really helpful. It is easy to access and materials are reliable. We might be missing basics but to cover multiple sectors it is effective method.”
– IT 6203

3. Quantitative and Qualitative Measures

3a. Uniform Measurements Questions

The following are uniform questions asked to all grant teams. Please answer these to the best of your knowledge.

Student Opinion of Materials

Was the overall student opinion about the materials used in the course positive, neutral, or negative?

Total number of students affected in this project: 290

- Positive: 88.17 % of 93 number of respondents
- Neutral: 8.61 % of 93 number of respondents
- Negative: 3.22 % of 93 number of respondents

Student Learning Outcomes and Grades

Was the overall comparative impact on student performance in terms of learning outcomes and grades in the semester(s) of implementation over previous semesters positive, neutral, or negative?

We have 5 courses in this project. In term of learning outcomes and grades comparing to previous semesters, two courses are positive, and three courses are negative. Overall student performance outcome is slightly positive comparing to previous semester.

Course	Student Performance outcome comparing to previous semester
CSE 3203	Negative
IT 4323	Positive
IT 4833	Negative
IT 6203	Negative
IT 6823	Positive

Student outcomes should be described in detail in Section 3b.

Choose One:

- Positive: Higher performance outcomes measured over previous semester(s)
- X Neutral: Same performance outcomes over previous semester(s)
- Negative: Lower performance outcomes over previous semester(s)

Student Drop/Fail/Withdraw (DFW) Rates

Was the overall comparative impact on Drop/Fail/Withdraw (DFW) rates in the semester(s) of implementation over previous semesters positive, neutral, or negative?

Course	Drop/Fail/Withdraw Rate of implementation over previous semesters
CSE 3203	Negative
IT 4323	Positive
IT 4833	Positive
IT 6203	Negative
IT 6823	Positive

Drop/Fail/Withdraw Rate:

Depending on what you and your institution can measure, this may also be known as a drop/failure rate or a withdraw/failure rate.

12.26 % of students, out of a total 129 students affected, dropped/failed/withdrew from the course in the final semester of implementation.

Choose One:

- Positive: This is a lower percentage of students with D/F/W than previous semester(s)
- Neutral: This is the same percentage of students with D/F/W than previous semester(s)
- Negative: This is a higher percentage of students with D/F/W than previous semester(s)

3b. Measures Narrative

In this section, summarize the supporting impact data that you are submitting, including all quantitative and qualitative measures of impact on student success and experience. Include all measures as described in your proposal, along with any measures developed after the proposal submission.

In project, we proposed to use multiple channels of data to measure the success of our transformative efforts. Quantitatively, we compared students’ DFW rates, grades, and success in learning objectives. The DFW rates are taken from student registration system. The student grades and success in learning objectives are assessed Faculty Course Assessment Report (FCAR). Faculty in IT department at Kennesaw State University are required to create a FCAR for every course they teach for each semester. The FCAR includes students’ grade and success in achieving the learning outcomes. Qualitatively, we developed a survey to collect students’ opinion on the learning material used in the courses. Students rated their experience using a 5 points scale. Students also give the opportunities to enter comments they may have. A copy of survey result is attached separately. Based on the assessment data we collected, the learning material we created offer the same level of the learning effectiveness as the textbook (in some case, even better). Students’ performance outcomes and DFW in generally stay the same pre-implementation and postimplementation.

4. Sustainability Plan

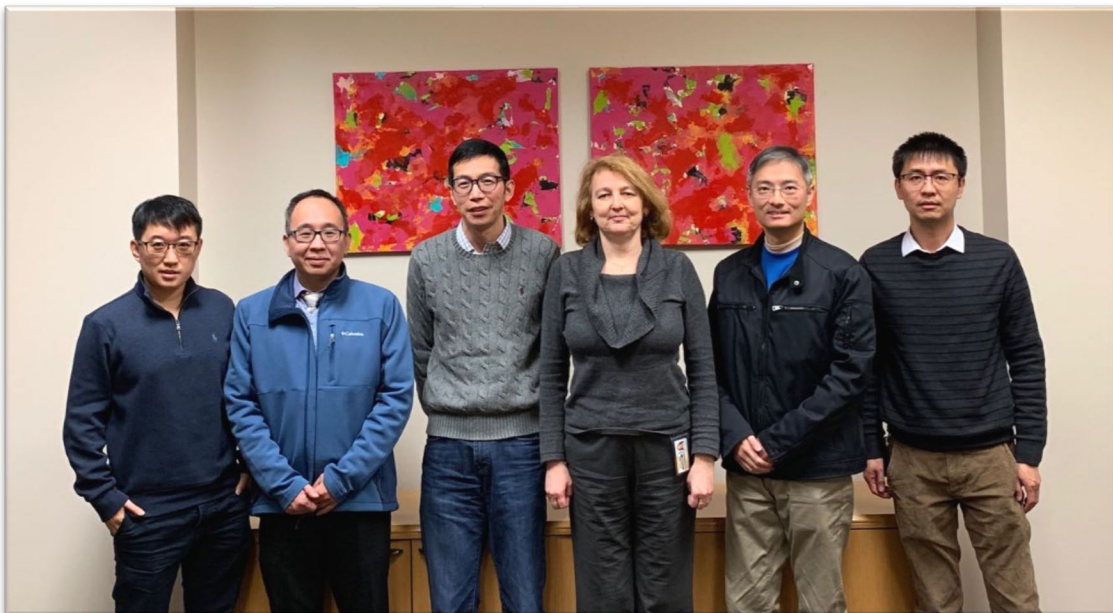
The IT department at KSU implemented a course architect system for all courses. A course architect updates course content based on research, publications and feedback from students and alumni. Each of instructor of record is a course architecture for corresponding courses. A course architect develops and maintains the course materials and teaching plans. He/she also teaches the course at least once a year to make sure all resources are valid and make necessary changes. This makes sure all no-cost materials and resources are highly sustainable in the future offerings of this course.

Each of the architecture will update course materials based on this semester course observations and student comments. The courses will be updated every three years based on IT department policy. It would also be update earlier due to the updating of the domain.

5. Future Plans

Standing at the point many emerging Information Technology upcoming, the existing technology frequently get updated and new technology constantly comes out. Due to this reason, the no-cost learning material model naturally fits better for IT curriculum than the traditional textbook models. The faculty in the IT department already completed several individual ALG project and three transform-at-scale grants. The positive feedback from the students and our own development and implementation process inspire more faculty in the IT to get involved with developing no cost learning material for their courses. We shared our experience from this project in the 48th Annual Frontiers in Education (FIE) Conference San Jose, CA, USA by Dr. Han. The responses we received from the panel discussion are very positive.

6. Description of Photograph



Left to right: Dr. Meng Han, team lead and instructor of record, Dr. Ming Yang, instructor of record; Dr. Lei Li, instructor of record; Dr. Svetlana Peltsverger, instructor of record; Dr. Guangzhi Zheng, instructor of record; and Dr. Zhigang Li, for all courses online learning support.