Goal/Assessment

Goal
Where are we going? What is expected? What will the student be able to do, know, and value at the end?

The student will be able to describe the general architecture of a reader and Gen2 reader layer enhancements.

Assessment
How do we measure? How will the student be assessed in the lessons and at the end of the module?
Use general terms. Present this to the student at the beginning of the module.

A student should:

- Be able to differentiate bistatic and monostatic configurations, identify the two major blocks in a reader architecture, and differentiate sensitivity and selectivity.
- Be able to recall the number of sessions in Gen2, describe the purpose of sessions in Gen2, and choose the appropriate session for a given application.
- Be able to list the three operating categories used in Gen2 and describe methods to minimize the interference between readers.
- Be able to describe the three types of parameters that LLRP can control.
- Be able to define middleware, describe what RFID middleware does to the tag data before sending it to an ERP system, and describe the advantages of using RFID middleware.
- Be able to list some common threats, evaluate risk using the STRIDE and DREAD models, and synthesize a new threat.

Hook
Pique the student’s interest using a case study, interesting story, experiment, or disaster.

Case study: What major components do you suppose are in a reader?
Lessons
Divide the module into logical lessons (4-5 days). Create lessons, activities, experiments, homework and/or quizzes based on these grain size lessons. Lesson: RFID Frequency Bands

Lesson: Reader Architecture and Antenna Configurations

Lesson: Gen2 Sessions

Lesson: Gen2 Single-, Multiple-, and Dense-Interrogator Operation

Lesson: Low Level Reader Protocol (LLRP)

Lesson: RFID Middleware

Lesson: Reader Layer Threats, Risks, and Mitigation

Culminating Activity
Tie it all together returning to the big idea. Go full circle. Create a culminating experience that ties lessons back to the module theme. Create module-level rubric and each topic is one of the lessons below.

Use a reader in the lab.

Assessment
Assess the results using tools such as paper/pencil, programming, simulation, demonstration, experiments, and projects. Paper and pencil homework assesses what you know. Programming, simulations, demonstrations, and projects assess what you can do.

Assessment:
Use rubric based on lessons. Each lesson is a row in the rubric.
Copyright Notice
This material is Copyright © 2008, 2009 by Dale R. Thompson. It may be freely redistributed in its entirety provided that this copyright notice is not removed. It may not be sold for profit or incorporated in commercial documents without the written permission of the copyright holder.

Acknowledgment
These materials were developed through a grant from the National Science Foundation at the University of Arkansas. Any opinions, findings, and recommendations or conclusions expressed in these materials are those of the author(s) and do not necessarily reflect those of the National Science Foundation or the University of Arkansas.

Liability Release
The curriculum activities and lessons have been designed to be safe and engaging learning experiences and have been field-tested with university students. However, due to the numerous variables that exist, the author(s) does not assume any liability for the use of this product. These curriculum activities and lessons are provided as is without any express or implied warranty. The user is responsible and liable for following all stated and generally accepted safety guidelines and practices.