CSHEMA Innovation Award: Process Improvement

Applicant: Virginia Tech
Environmental Health and Safety
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Training Management System (TMS)

Prior to development of the TMS, both in-person and on-line trainings records were processed manually. For on-line training, this meant downloading gradebooks off Scholar and transferring that data into our stand-alone web-based training portal, a process that was quickly becoming unsustainable due to increased training demand. As a result, a decision was made in 2014 to integrate training into the EHS Safety Management System (SMS) and expand the capability of that system. During the next four years, forty on-line training programs were developed using Captivate. Captivate allows the training to be published in HTML5, which is not dependent on Adobe Flash and is device independent, which improves the user experience. We are able to 'branch' training based on information provided by the client at the time of enrollment, which allows one training program to address multiple training needs that fall under one 'umbrella'; Biosafety for Researchers, for example, can 'branch' to include information on bloodborne pathogens if relevant to the individual. Because we are creating our own training materials, we are able to make it Virginia Tech-centric by using pictures of our buildings, our clients, our labs and our operations. The entirety of the on-line training process is handled by the TMS, from registration to launching the training to recording training completion.

We estimate that the move off Scholar and development of the TMS has saved more than 6,000 EHS employee hours over the past forty-four months.

44 Months
40 Programs

The transition away from SCHOLAR was a CRITICAL step towards meeting future demands.
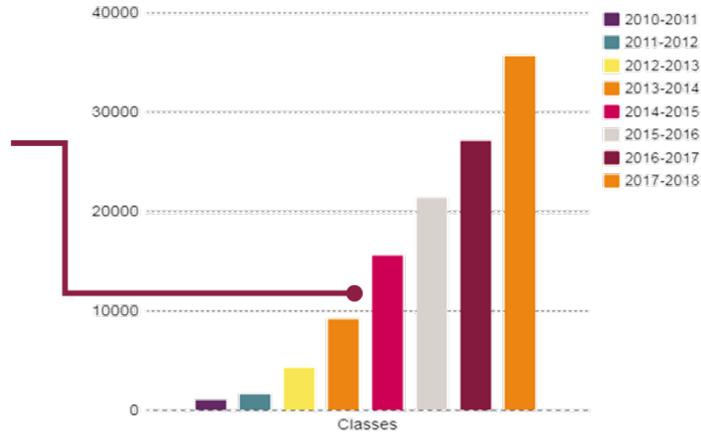
72,686 Completions
6,057 Hours Saved

Figure 1 - On-line Training by Fiscal Year

Similarly, the TMS has also significantly reduced the time it takes EHS personnel to manage in-person training. From the EHS Administrative Area of our website, trainers are able to view schedules for existing scheduled classes, add new classes to the published schedule, and easily record attendance.
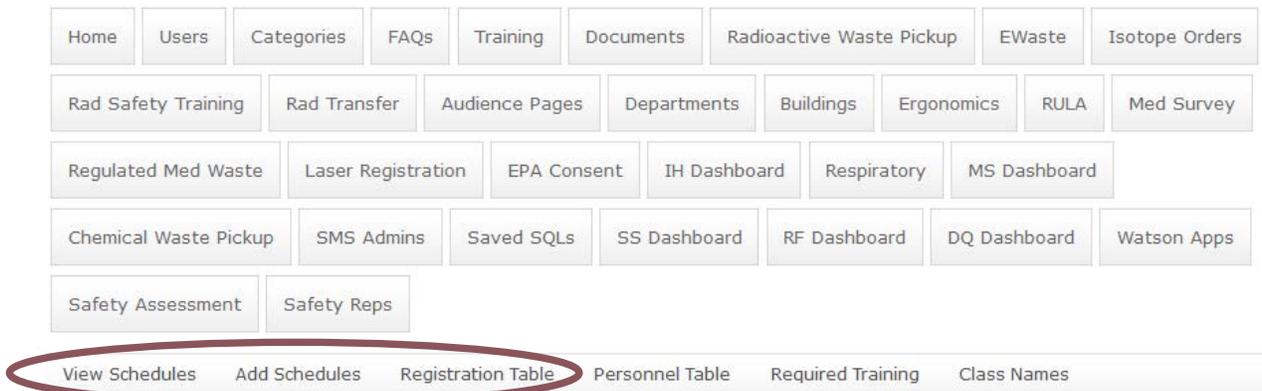

Figure 2 - EHS Admin Website

Find Records by Class

Showing Records of Class: **Bloodborne Pathogens, 2018-04-17 15:30:00** ✖

Reg ID	Class ID	Name	VT ID	Department
238621	4263	Forte, Heather A. (hedav)	xxxxx3563	University Libraries, Library Storage
236831	4263	Haacke, Lauren (laurenkh)	xxxxx6536	VT Carilion Research Institute, General
238930	4263	Harvey, Kristina (kristina18)	xxxxxx	Student Affairs, General
239096	4263	Lewis, Cherish (lee96)	xxxxx0974	Student Affairs, General

Add Registrant

Copy Roster to Another Class

Figure 3 - Class Registration Page

Figure 3 shows a sample class roster. After the established date and time of the class has passed, the TMS automatically changes this view to a 'record attendance' page. Attendance can be recorded globally with one click, or individually as needed. These efficiencies were vital to sustaining and responding to the exponential growth in training demand we have experienced in the past five years as shown by Figure 4.
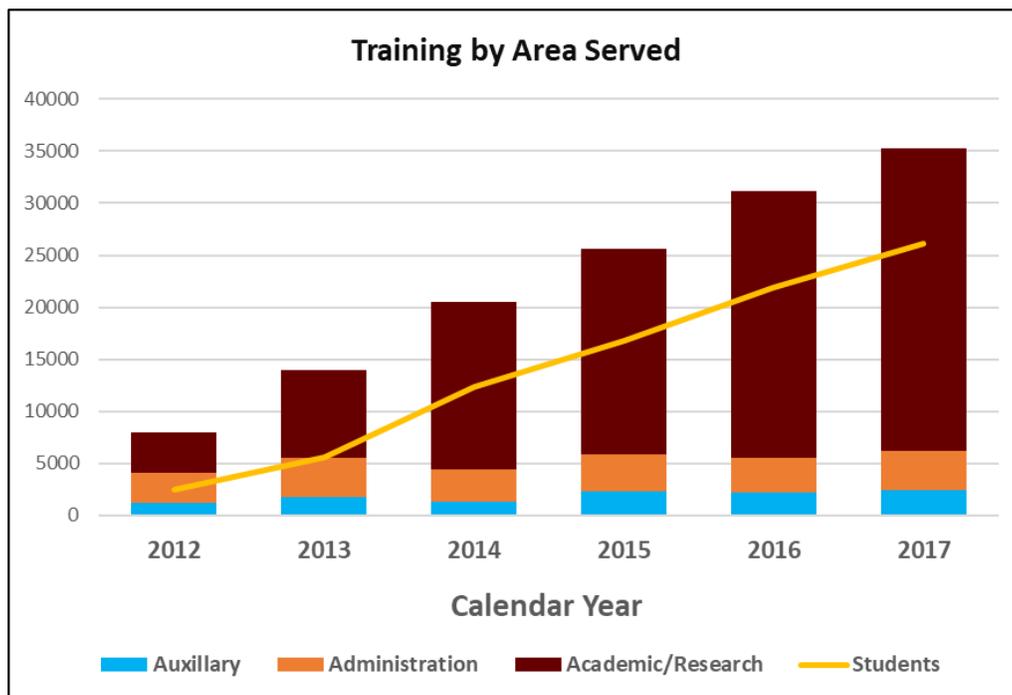

Figure 4 – Training Completions by Area by Calendar Year

Integration of the TMS with the SMS allows granular control of training within each lab or workgroup.

- Any person, Principal Investigator or supervisor can create a lab/workgroup in the SMS.

- Users can be added to that lab/workgroup, and various roles can be assigned to allow subordinates or lab managers, for example, to manage the system on behalf of others

- Users can be assigned to subgroups (Figure 6)

- Training requirements can be applied to the entire lab/workgroup, subgroups, or even individuals

- Training status is readily apparent (Figure 5)

- System-generated emails can be sent to notify individuals when their training has lapsed, or the responsible authority can directly enroll individuals in training

- Training reports can be run at the lab/workgroup or departmental level

- Users can create their own class names for non-EHS related training (e.g., lab-specific training) and record attendance for assigned persons (Figure 7).

Figure 5 - Sample of SMS Required Training View for a Workgroup

Manage Sub Groups for Health & Safety Bldg, HIPAA_FERPA Training

Add Sub Group

Name: [   ] [submit]

Existing Sub Groups

Name	Actions
FERPA	[users (18)] [rename] [delete ✖]
HIPAA Awarenss	[users (11)] [rename] [delete ✖]
HIPAA Security	[users (3)] [rename] [delete ✖]

The SMS serves more than:

- 1,200 labs or workgroups
- 17,400 persons

Figure 6 - Example of How Subgroups are Created for non-EHS Provided Training

Manage External Classes for Health & Safety Bldg, HIPAA_FERPA Training

[Return to Lab]

This section allows you to create and record attendance for classes that are not in the EHS training system. Some examples are work group specific classes such as how to use a particular piece of equipment or safety training specific to the work space. EHS provides this system as a courtesy to users of the SMS.

[Add New External Class]

Existing External Classes

Name	Actions
FERPA	To record the class attendance:

1. Check the Attended box for people that attend the class.
2. The Attended Date will be today's date. You may edit that entry if needed.
3. Select Save.

Repeat this process if someone takes the same class on a different date.

User	Attended	Attended Date
Adams, Zack (adamsz)	☑	2017-07-07
Dadras, Juliet (mjdadras)	☑	2017-10-30
Kroner, Anna (acastigl)	☑	2018-03-18
Laratonda, Elliot (epl)	☑	2018-03-09

Figure 7 - Users can Assign and Record Attendance for non-EHS Provided Training

- The SMS is linked to the university badging system, and swipe access to certain areas can be restricted if a person's training has lapsed.

Future improvements planned include: providing automatic notification of training expirations, and adding mandatory training to workgroups based on what we know from our other data sources (chemical registrations, medical services) and inspections.