

Journal of Homeland Security and Emergency Management

Volume 8, Issue 2

2011

Article 11

FUTURE OF HOMELAND SECURITY AND EMERGENCY
MANAGEMENT EDUCATION

Emergency and Civil Protection: Curriculum Design for 30 Hours of Instructional Time

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Recommended Citation:

Jordá, Aurora (2011) "Emergency and Civil Protection: Curriculum Design for 30 Hours of Instructional Time," *Journal of Homeland Security and Emergency Management*: Vol. 8: Iss. 2, Article 11.

DOI: 10.2202/1547-7355.1908

Available at: <http://www.bepress.com/jhsem/vol8/iss2/11>

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Emergency and Civil Protection: Curriculum Design for 30 Hours of Instructional Time

Aurora Jordá

Abstract

This paper describes the experience of designing the curriculum and teaching the subject of Emergency and Civil Protection in a master's program in Spain, from 2006 to the present. With the restrictions set by key descriptors: civil protection, actions in emergencies and major accidents, and an assigned instructional time of 30 hours, the curriculum consists of 3 thematic units: Emergencies, Emergency Plan and Corporate Autoprotection Plan, and Actions. The methodological approach combines lectures with practical exercises, and overcoming the disadvantage of the lack of suitable notes or book for the study, the interest aroused in the students resulted in an egress level of over 80 percent, more than 20 master's theses about autoprotection plans have been defended, and a doctoral thesis is in progress.

KEYWORDS: emergency management, civil protection, curriculum, master's program

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THE PAST

In June 2006, the author was appointed professor-in-charge to teach Emergency and Civil Protection in the Official Postgraduate Master’s in Occupational Hazard Prevention. This course was scheduled to begin in the 2006-2007 academic year at the Polytechnic University of Valencia (Spain) as one of the postgraduate programs of Technologies for the Health and Welfare Doctoral Program. The master’s certificate is the degree for higher level prevention technician (*Técnico superior de prevención de riesgos laborales*) as required by Spanish Law 31/1995, November 8th, and Royal Decree 39/1997, January 17th.

At that time, there was no course or even a topic related to emergencies in any Spanish university in any degree recognized by the Council of Rectors of Spanish Universities (*CRUE*). There were several university pre-Bologna master’s programs in which the subject was taught and technicians with certificates of prevention were approved to practice by the Labor Departments of corresponding autonomous regions. However, there were no suitable guidelines from previous experience to prepare the teaching guide. Furthermore, as summarized in **Figure 1**, there were two very restrictive premises: the requirement of 30 hours of teaching time corresponding to three credits in Work Safety Specialization Module and “descriptors” or topics required in the approved program and curriculum; and two objectives: ensure that students achieved a test score between 5 and 10 for completion and receive an egress level of 80 percent or higher, meaning that at least 80 percent of the students complete the program.

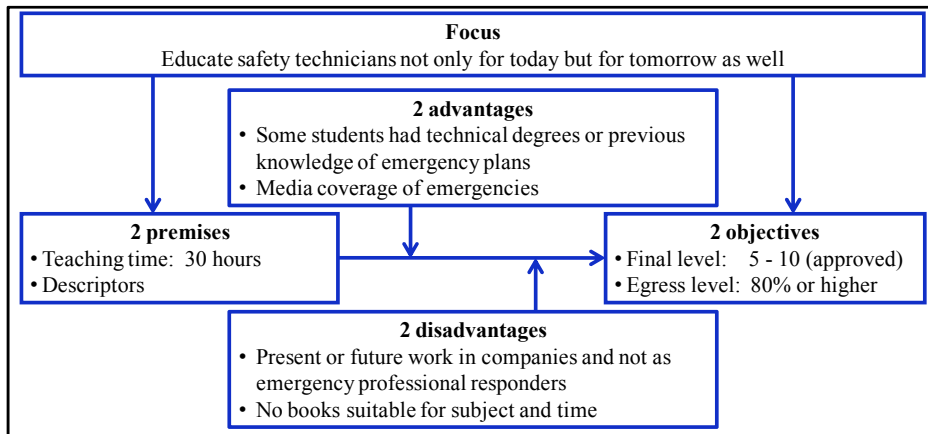


Figure 1. Premises and objectives for teaching guide.

The challenge was to avoid creating a syllabus with topical issues, but instead to focus on educating not only for today but for tomorrow. Two advantages and two disadvantages had to be taken into account. The advantages were the technical degrees or work experience in occupational hazards that some

students had already received, as well as the knowledge of the kind of events that bring media coverage of emergencies, including the terrorist attacks of September 11, 2001 in the U.S. and March 11, 2004 in Madrid. The first disadvantage was that in most cases these present or future technicians would not be full-time professional emergency managers or responders. Instead, they would be working primarily in companies, most likely involved with other responsibilities such as quality control or environmental policy. However, they would probably be the most highly prepared people in case of emergency. The second disadvantage, given these goals and the time allotted, was that no publications in Spanish were suitable to use in teaching this subject. Furthermore, using published papers or grey literature in English was not an option since most students do not have sufficient knowledge of English to study effectively.

As the core curriculum developed, it became obvious that there were other additional constraints: students' lack of knowledge about emergencies; differences in prior academic background, ranging from graduate to postgraduate studies, in different technical, science or social science areas as architecture, engineering, biology, nursing, psychology or law; the ongoing adaptation of university degrees to Bologna Process (EC, 2011) to establish the European Higher Education Area (EHEA); assessment of the knowledge, skills and abilities acquired; and linking emergency management to occupational hazards prevention.

Thus, in accordance with the descriptors, the principles of Bologna Process and a literature review of state-of-the-art references, mainly from FEMA Higher Education Program and Spanish General Directorate of Civil Protection and Emergencies (*DGPCE*) documental bases, 10 questions rose as core subjects for the course. The thematic units and lessons are shown in **Figure 2**.

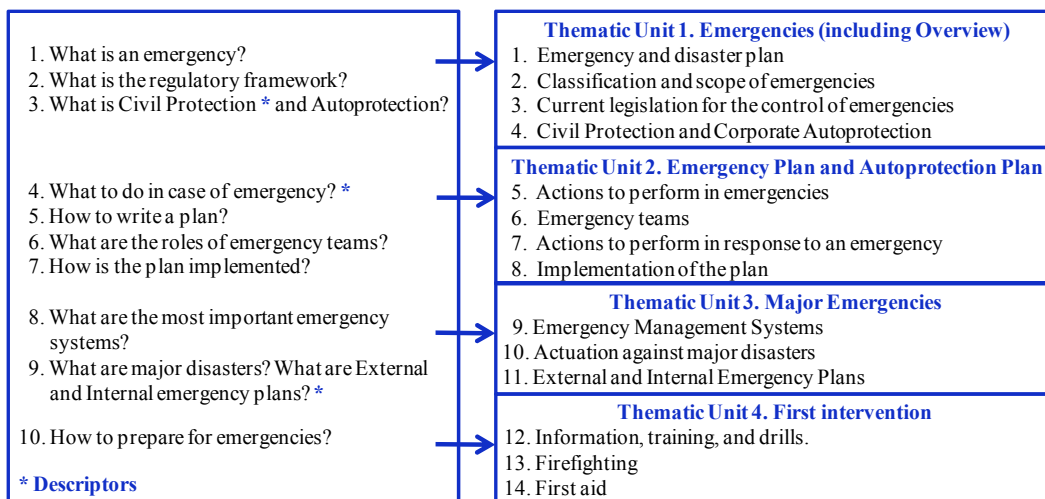


Figure 2. Core subjects and thematic units.

Other issues to be resolved about the pedagogical approach were timely distribution of contents, teaching-learning methodology, assessment procedures, and recommended bibliography. In the first session of class, while being given an overview of the course, students were consulted on their views on the syllabus. They stated that the lessons in the First intervention unit about Firefighting and First aid had been studied in other courses, and that they would prefer to devote more time to learning how to write a plan and to conduct emergency drills. Accordingly, the syllabus and timing were changed, as shown in **Table 1**. The selected teaching-learning methodology was a combination of lectures and practical exercises as case studies. The proposed assessment procedure consisting of a final examination was also changed after several weeks since the students had asked to choose between taking a test and writing a paper on the course content.

	WORK (estimated hours)			
	At classroom (Presential)	Autonomous (No presential)	Total	
Thematic unit 1: Emergencies		7	3,5	10,5
1. Emergency and disaster plan	3	1		4
2. Classification and scope of emergencies	1	1		2
3. Regulations to prevent and control emergencies	1	0,5		1,5
4. Civil Protection and Corporate Autoprotection	2	1		3
Thematic unit 2: Emergency Plan and Autoprotection Plan		13	6,5	19,5
5. Actions to perform in emergencies	4	1,5		5,5
6. Emergency teams	3	1		4
7. Actions to perform in response to an emergency	4	2		6
8. Implementation of the emergency plan	2	2		4
Thematic unit 3: Actuations		10	5	15
9. Emergency Management Systems	3	2		5
10. Actions for responding to major disasters	1,5	0,5		2
11. External and Internal Emergency Plans	1,5	0,5		2
12. Information, training, and drills	4	2		6
TOTAL WORK (estimated hours)		30	15	45

Table 1. Course agenda.

The academic material for each lesson was prepared by the author for this purpose with the following selected references:

Thematic Unit 1: Emergencies

1. *Emergency and disaster plan*: General Directorate for Civil Protection (1988). Jordá Rodríguez (2000). Kletz (2001). Turner (1995).
2. *Classification and scope of emergencies*: Dirección de Atención de Emergencias (1995). García Gómez (1999).

3. *Regulations to prevent and control emergencies*: Boletín Oficial del Estado. General Directorate for Civil Protection and Emergencies.
4. *Civil Protection and Corporate Autoprotection*: General Directorate for Civil Protection. (1989). European Commission. (1999). Federal Emergency Management Agency. FEMA-EMI. (1998). Jones et al. (2000). Vara Moral (2000).

Thematic Unit 2: Emergency Plan and Autoprotection Plan

5. *Actions to perform in emergencies*: Alexander (2000). Comisión Nacional de Emergencias de Costa Rica (1993). Donahue and Joyce (2001). Federal Emergency Management Agency FEMA-EMI. (2001). McLoughlin (1985). Petak (1985). Shaw and Harrald (2004). Tufekci and Wallace (1998). UNEP (1988). UNHCR (2007). Van Dorp et al. (2001). Wallace and De Balogh (1985). Waugh (1994).
6. *Emergency teams*: Federal Emergency Management Agency FEMA. (1996). Ministerial Order of November 29, 1984 (BOE no. 49, February 26). Royal Decree 393/2007 of March 23 (BOE no. 72, March 24).
7. *Actions to perform in response to an emergency*: Alexander (2002). Azcuénaga Linaza (2001). Contelles Díaz (2008). Haddow et al. (2011). Quarantelli (1998). Román Fernández (2003). Samurcay and Rogalski (1993). U.S. Department of Education (2003). USAID (1998).
8. *Implementing the emergency plan*: Royal Decree 393/2007 of March 23 (BOE no. 72, March 24, 2007). Royal Decree 314/2006 of March 27 (BOE no. 74, March 28, 2006). Fundación MAPFRE-TAVERA (2000). Klinke and Renn (2002).

Thematic Unit 3: Actions

9. *Emergency Management Systems*: General Directorate for Civil Protection (1988). Federal Emergency Management Agency. FEMA-EMI (1998). Home Office (2003). UNHCR (2007).
10. *Actions for responding to major disasters*: General Directorate for Civil Protection and Emergencies (2004). CEPRODE (nd).
11. *External and Internal Emergency Plans*: Royal Decree 1254/1999 (BOE no. 172, July 20, 1999).
12. *Information, training, and drills*: Alexander (2000). Auf der Heide (1989). Contelles Díaz and Jordá Rodríguez (2006). Department of Health and Human Services (2002). FEMA-EMI (1999). Jordá Rodríguez and Maciel (2006). Rodríguez (2004). The Civil Contingencies Secretariat (2003). Virginia Department of Emergency Management (2001).

THE PRESENT

With minor variations, the course is currently taught with lectures combined with classroom exercises. For example, before a lesson students are asked to make a concept map or to answer the question: what would you do in this case? Thus, they can compare what they knew before with what they know afterward. After the lesson they do exercises as case studies based on news, videos, and articles. They prefer videos on *youtube.com* accessed with the teacher's computer and projected on a screen using a video projector. Classes are also given in this way. Two forms of assessment are maintained: the final course examination and continuous assessment adapted to Bologna, which includes attending 80% of the classes, and writing papers about each topic doing the exercises included in the academic material prepared for topics. Between 30 and 50% of students choose this form of assessment, and the rest take a final exam during which they can consult the class notes. However, this creates two dilemmas. Students who take the examination complain that they have “to think” rather than “memorize and then write” as they are used to doing. Those who choose the academic paper say it is “difficult” because they are not used to this kind of requirement. However, they have to learn to do this in order to write the final master’s thesis.

Since 2006 the academic material has been updated with new books, journal papers, research, reports, and documents from organizations and experts, as well as new regulatory norms. Noteworthy are two books: Contelles Díaz (2008) and Haddow et al. (2011). One important norm that has changed is Ministerial Order of November 29, 1984 (BOE no. 49, February 26). Until 2007 the standard for corporate autoprotection plan has been repealed by Royal Decree 393/2007 of March 23 (BOE no. 72, March 24), which established a new model.

The results of the four years that the Master’s program has been taught are summarized in **Table 2**, which shows that the enrollment has been increasing and the objective of egress has been achieved satisfactorily. The interest of students has been substantial. More than 20 master’s theses of a total of 60 submitted have been about autoprotection plans. In addition, there is a doctoral thesis in progress, and several alumni are working in areas related to emergency management.

	Total enrolled	Honors 10	Excellent [9 - 10]	Notable [7 - 9]	Approved [5 - 7]	Suspended [0 - 5]	Not presented	Presented	% completed /enrolled
2006-2007	25	0	2	16	6	0	1	24	96,0%
2007-2008	31	0	2	20	6	0	3	28	90,3%
2008-2009	34	0	1	19	9	0	5	29	85,3%
2009-2010	52	0	6	34	8	0	4	48	92,3%
Total	142	0	11	89	29	0	13	129	90,8%

Table 2. Statistical values of academic results.

In order to assess prior academic training and knowledge, the students are asked the following questions at the beginning of each course. It is explained that this is not a test, but rather a pretest to be compared with the results of a posttest at the end of the term:

1. Do you think that a higher level prevention technician must have specific training in emergency management?
2. What do you think an Emergency and Civil Protection course provides for certification? What do you think should be the objectives of the training?
3. What do you think should be the main concepts developed in the course for this training to be useful and to provide the necessary skills and abilities?
4. From your academic background, what do you think is the contribution that you can provide to an emergency team in an organization?
5. Of the proposed topics, classify the various topics in the course according to the importance that you think they have. What seems more important? What is superfluous, and what is missing?
6. Explain what you think Civil Protection is, and what the difference is between Civil Protection and Emergency Management.
7. Do you know the difference between an Emergency Plan and an Autoprotection Plan?
8. What do you think is the most important emergency situation that has happened in Spain and in the world? Can you cite an emergency situation in a business context?

Although many public and private universities offer a master's degree in Occupational Hazard Prevention, there has been none in which emergency management is taught as a separate subject in a postgraduate program. However, there is a graduate Degree in Safety and Emergencies available in e-learning mode at University of Las Palmas de Gran Canaria, fully adapted to the European Higher Education Area (EHEA). Among the many training programs in emergency management, the most important is the Specialist Course in Civil Defense and Emergencies (online edition) at the National School of Civil Protection of the General Directorate for Civil Protection and Emergencies, Ministry of Interior of Spain.

THE FUTURE

Past experience has confirmed the adequacy of the initial curriculum and provided knowledge about what kinds of students take the courses and what their needs are.

The directions of future work are the result of the experience of teaching and researching as well as queries and comments from students and alumni. These directions include the following: updating academic programs; and establishing the necessary university relations through collaboration agreements with private companies, members of the professional field of emergency response such as fire and emergency medical services, civil protection agencies, law enforcement and military forces specialized in emergency. The university should also establish relationships with citizens and media to educate, inform, or even conduct research with them. More specific goals include:

1. Continue implementing the Bologna Process and progress towards implementing undergraduate, graduate, and postgraduate programs in emergency management.
2. Improve the study and management of risks in a business context: technological and social risks in addition to natural hazards, directed toward made-in-business practices by students supervised by teachers, research studies, and doctoral dissertations.
3. Increase the use of information and communication technologies and introduce new topics, such as Geographical Information Systems (GIS), to be applied to emergency management, social vulnerability, and critical infrastructure protection, or expand existing ones as Business Continuity.
4. Promote academic research as well as research in collaboration with business. For example: what do companies need from safety professionals to hire them and, once hired, to keep their training updated? And how can the university contribute to this training?
5. Encourage collaboration among professionals in emergency response and safety professionals working in companies since they are responsible for mitigation, preparedness, and rehabilitation. They act as “first responders” until emergency professionals arrive; they train those who work in the company; and they are responsible for drafting and implementing the plan.
6. Define the professional and academic profile of a new role called “company firefighters” (*bomberos de empresa*), which will be soon implemented in Catalonia and Valencia Autonomous Regions.

CONCLUSIONS AND PERSONAL EVALUATION

Although students do not have a clear idea about the subject of emergency management and civil protection early in the course, their interest in the subject is enough incentive to undertake these studies. Often during the first days they may ask, “*Aren't firefighters in charge of that?*” As the course progresses to more specific issues, students develop great interest, both personal and academic,

encouraged by the technical and educational documentation provided by the notes prepared for each topic and the use of author's experience in this very concrete and specific field. These facts are much appreciated by the students, who view the subject as an aid to acquiring the knowledge and capabilities that can be advantageous in their future work.

Academically, teaching this course is a challenge every year because the contents of some topics must be revised annually, either because the regulations have changed or new studies have been published. Sometimes the author comments: *"This is not in your notes, but I read something on this subject yesterday that you can read at this URL"*. This provides personal enrichment, which is required for classes with a "quality level" in which postgraduate students ask questions like: *"What is the difference between a civil protection technician and a volunteer? How can I become one? What really happened in Chernobyl, Bhopal, Haiti or Japan?"*

The main problems in teaching this subject are the different academic backgrounds and levels of students as well as their various personal and professional interests. An additional difficulty is the lack of appropriate reference documentation in Spanish for this specific knowledge and degree, so each topic includes updated bibliography.

The process described is quite different from the problem of curricula in general in the United States. The education system is different; there is a wide range of courses at all levels, including homeland security; demand is high, and significant experience in teaching has already been acquired. However, in Spain the choice is very limited, and so is demand. However, there may be common points: students coming into the program without prior emergency management education, from different cultural contexts or countries, and specific time limitations.

This work provides experience that can assist other teachers to overcome these disadvantages, take advantage of similarities, and improve teaching in the field of emergency management.

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