Montgomery County Community College
CJS/EMP/FSC 265
Public Safety Technology
3-3-0

COURSE DESCRIPTION:
This course will focus on current themes in public safety technology, to include such topics as: Computer Aided Dispatch, basic ideas of mobile radio technology, mobile data/mobile computer capabilities and functionality, public safety applications for Global Positioning technology, as well as emerging trends that will appear in the Public Safety arena in the next 3 to 5 years. An overview of standards governing communications systems, dispatchers, and other areas of public safety technology will also be covered. Topics will be covered at a non-technical level to provide the student with an overview and understanding of the technology rather than an in-depth examination of just a few specific items. Lectures will include live demonstrations of devices to reinforce key concepts and promote greater understanding. Students will prepare a summary paper in small groups on an emerging idea in public safety technology, based upon original research.

REQUISITES:
Previous Course Requirements

- FSC 100 Introduction to Fire Science, or EMP 100 Emergency Planning, or CJS 100 Introduction to Criminal Justice

Concurrent Course Requirements
None

LEARNING OUTCOMES Upon successful completion of this course, the student will be able to:	LEARNING ACTIVITIES	EVALUATION METHODS
1. Describe the wide array of critical roles that technology plays in contemporary emergency response.	Assigned Readings Lectures Discussions Case Study Analysis AV/Multimedia Materials Internet Field Trips Field Trips Essay Assignments Directed Research Quizzes and Exams	Multiple-Choice Exam Graded Essay Graded Essay Exam Assignments Graded Research Project Individual or Group Presentation Graded Class Discussion Graded Case Study

LEARNING OUTCOMES	LEARNING ACTIVITIES	EVALUATION METHODS
2. Describe the theory and practical applications of: modern voice and data transmission systems and their interoperability; mobile systems and incident command centers; computer-assisted dispatch systems; Global Positioning Systems; Computerized data-retrieval and cross-check systems; optical-to-digital systems and CCTV; Biometrics; National and international databases including Integrated Automated Fingerprint Identification System (IAFIS), Combined DNA Index System (CODIS), National Instant Criminal Background Check (NICS); Firearms Information Tracking System (FITS), and more.	Assigned Readings Lectures Discussions Case Study Analysis AV/Multimedia Materials Internet Field Trips Field Trips Essay Assignments Directed Research Quizzes and Exams	Multiple-Choice Exam Graded Essay Graded Essay Exam Assignments Graded Research Project Individual or Group Presentation Graded Class Discussion Graded Case Study
3. Describe applicable regulatory standards and guidelines governing public safety technology systems including APCO Project 16 communications systems standards, Motorola R56 Installation standards, TIA TSB-88 coverage testing standards.	Assigned Readings Lectures Discussions Case Study Analysis AV/Multimedia Materials Internet Field Trips Field Trips Essay Assignments Directed Research Quizzes and Exams	Multiple-Choice Exam Graded Essay Graded Essay Exam Assignments Graded Research Project Individual or Group Presentation Graded Class Discussion Graded Case Study

LEARNING OUTCOMES	LEARNING ACTIVITIES	EVALUATION METHODS
4. Demonstrate through written and in-class exercises his or her knowledge of procedures and methodologies for evaluating competing bids for hi-tech products and services, and their ability to contribute knowledgeably to public purchasing decisions.	Assigned Readings Lectures Discussions Case Study Analysis AV/Multimedia Materials Internet Field Trips Field Trips Essay Assignments Directed Research Quizzes and Exams	Multiple-Choice Exam Graded Essay Graded Essay Exam Assignments Graded Research Project Individual or Group Presentation Graded Class Discussion Graded Case Study
5. Demonstrate through written and in-class exercises his or her understanding of how technology applies across an interdisciplinary plane, and how it facilitates and serves the objectives of interagency cooperation and coordination and the principles of unified incident command.	Assigned Readings Lectures Discussions Case Study Analysis AV/Multimedia Materials Internet Field Trips Field Trips Essay Assignments Directed Research Quizzes and Exams	Multiple-Choice Exam Graded Essay Graded Essay Exam Assignments Graded Research Project Individual or Group Presentation Graded Class Discussion Graded Case Study
6. Demonstrate through simulation and scenario exercises an ability to evaluate emergency response systems breakdowns, and determine whether weaknesses are human or technological, and whether technological solutions are applicable to the problem.	Assigned Readings Lectures Discussions Case Study Analysis AV/Multimedia Materials Internet Field Trips Field Trips Essay Assignments Directed Research Quizzes and Exams	Multiple-Choice Exam Graded Essay Graded Essay Exam Assignments Graded Research Project Individual or Group Presentation Graded Class Discussion Graded Case Study

At the conclusion of each semester/session, assessment of the learning outcomes will be completed by course faculty using the listed evaluation method(s). Aggregated results will be submitted to the Associate Vice President of Academic Affairs. The benchmark for each learning outcome is that *70% of students will meet or exceed outcome criteria*.

SEQUENCE OF TOPICS:

1. Overview – Evolution of public safety technology systems; history of mobile data networks, basic forms of radio systems. Evolution of Internet-based applications and databases and how they have influenced field-provider duties.
2. Communications Systems – Understand the basic ideas of a communication system and its components; mobile radios, antenna sites, different manufacturers. Explanation of the core ideas of public safety radio systems; trunking, analog, IP-based. Key advantages and disadvantages of each.
3. Communications Interoperability – Understand interoperability and its benefits; data and voice/radio interoperability. Solutions for acute interoperability needs – gateways, etc. Long term interoperability plans, design, and systems.
4. Mobile Data Systems – Understand the key ideas of mobile data networks and their benefits to field providers. Explanation of the basic systems available – private networks, public networks, hybrid systems.
5. Computer Aided Dispatch Systems – Linking material from Weeks 1 – 3, Introduction to Computer Aided Dispatch systems and how they bridge the gap between field providers and the communications center. How mobile data and mobile radio networks interface to CAD systems. Discussion of key concepts of CAD, manufacturers, and advantages/disadvantages to different products.
6. Global Positioning Systems/Automatic Vehicle Location – Use of the Global Positioning System in public safety technology applications. Introduction of Geographic Information Systems (GIS) and their use. Georeferenced dispatch applications such as “Closest ambulance, Closest police car, closest hydrant, etc.”
7. Standards in Public Safety Technology – Understand the standards that govern public safety technology systems. APCO Project 16 communications systems standards, Motorola R56 Installation standards, TIA TSB-88 coverage testing standards. Key ideas and fundamental concepts, as well as an explanation of why these items are important to field providers.
8. Public Safety Technology Project Management – Discuss the importance of understanding field user needs, involvement of all disciplines, adherence to a specific project schedule and progress reporting. How public safety project management differs from other forms, potential pitfalls and how to address unique needs.
9. Biometrics – Use of biometric identification in the public safety arena. Fingerprint scanning, retinal scanning, voice prints, and facial recognition. Examples of actual systems in use throughout the Commonwealth as well as nationwide.
10. Information Sharing – Understand the key concepts of information sharing in law enforcement as well as the challenges faced. Overview of laws governing what information can be shared, how, and by whom.
11. Multi-Disciplinary Technology – Understand technologies with broad interdisciplinary use; Enhanced 911, Phase 2/3 Wireless Phone Location, mobile command centers, emergency operations centers, etc.

12. Emerging Trends in Public Safety Technology – Focus on key emerging concepts in both radio, mobile data, and computer aided dispatch as well as any additional key areas that may be a source of technology that has the potential to fundamentally change how public safety providers do their jobs. Concepts such as: IP-based radio, Software defined radio, mobile data mesh networks, etc.
13. Team Presentations – Small teams will make a short presentation on their original research and an emerging theme in public safety technology.

LEARNING MATERIALS:
Managing Crises and Disasters with Emerging Technologies: Advancements (2012) by Murray Jennex (San Diego State University)

Other learning materials may be required and made available directly to the student and/or via the College's Libraries and/or course management system.

COURSE APPROVAL:

Prepared by: Benn Prybutok		Date: 9/29/2006
Revised by: Benn Prybutok		Date: 2/4/2009
VPAA/Provost Compliance Verification:	Dr. John C. Flynn, Jr.	Date: 9/11/2009
Revised by: Benn Prybutok		Date: 2/2013
VPAA/Provost or designee Compliance Verification: Victoria L. Bastecki-Perez, Ed.D.		Date: 2/25/2013
Revised by: Jayden Sampson		Date: 12/16/2017
VPAA/Provost or designee Compliance Verification:		Date: 12/18/2017

This course is consistent with Montgomery County Community College's mission. It was developed, approved and will be delivered in full compliance with the policies and procedures established by the College.