SATELLITE OPERATIONS TRAINING PROGRAM EVALUATION



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HSE 427 DESIGN FOR LEARNING

AGENDA

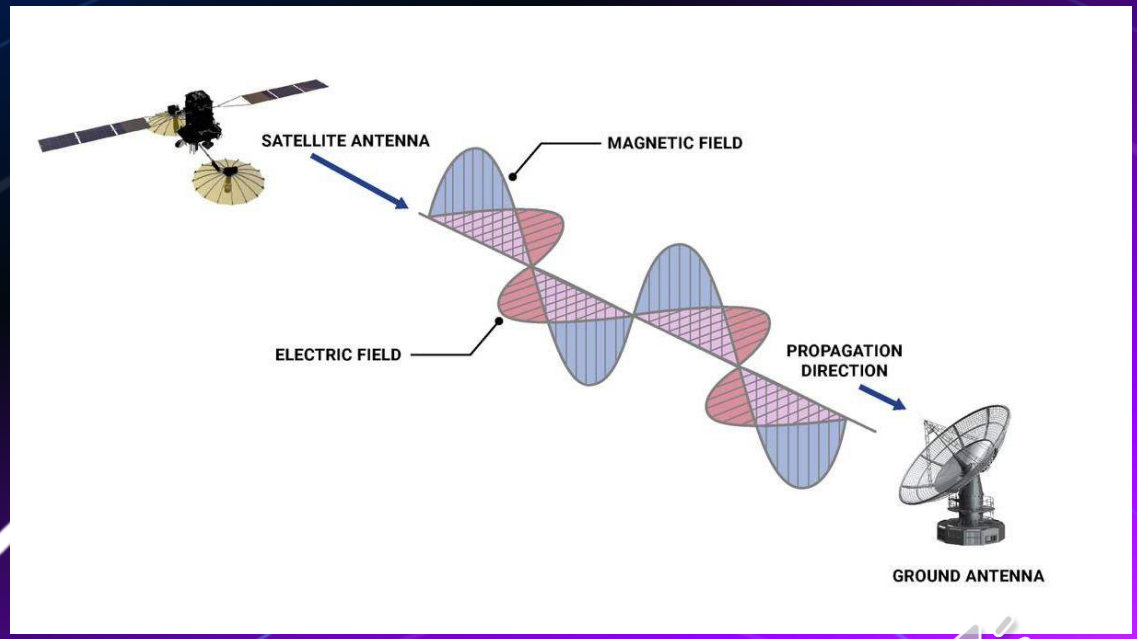
Training Program Introduction

Evaluation Criteria

Findings

Redesign Recommendations

Conclusion



TRAINING PROGRAM INTRODUCTION

- Course Purpose: Introduction to satellite operations for professionals and students.
- Target audience: Aerospace professionals and students
- Created from a partnership with ASU Interplanetary Initative and Qwaltec, a privately held commercial aerospace and network operations systems contractor
- Uses a “blend of theoretical understanding and practical insights”
- https://careercatalyst.asu.edu/programs/introduction-satellite-operations/



EVALUATION CRITERIA

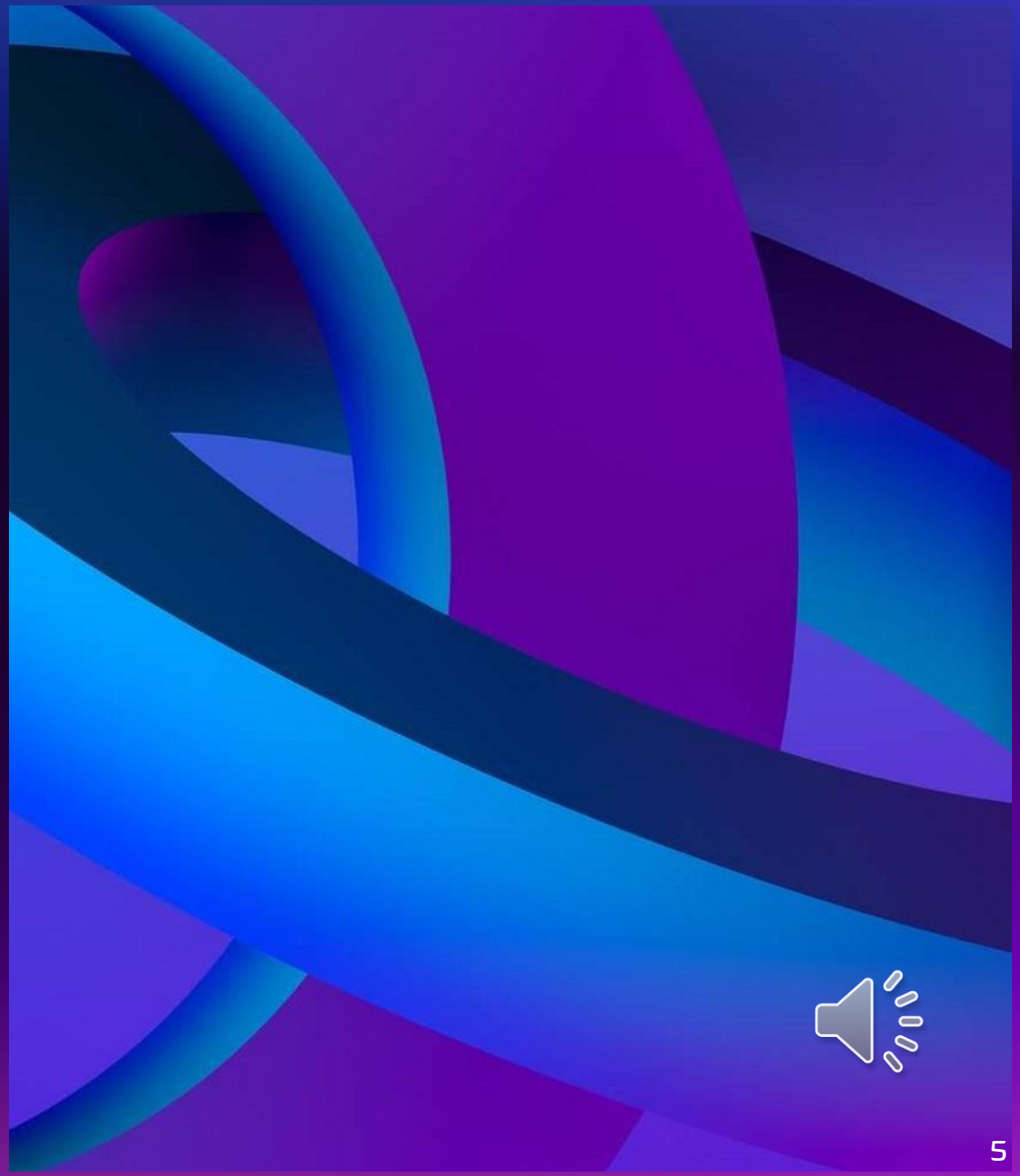
Summary of key aspects evaluated, and the criteria examined.

FOCUS	EVALUATION CRITERIA
Instruction Structure	Progression, practice type, content alignment
Extrinsic Feedback	Timing, quality, and usefulness of feedback
Motivation	Autonomy, competence, relatedness



EVALUATION

FINDINGS



INSTRUCTION STRUCTURE

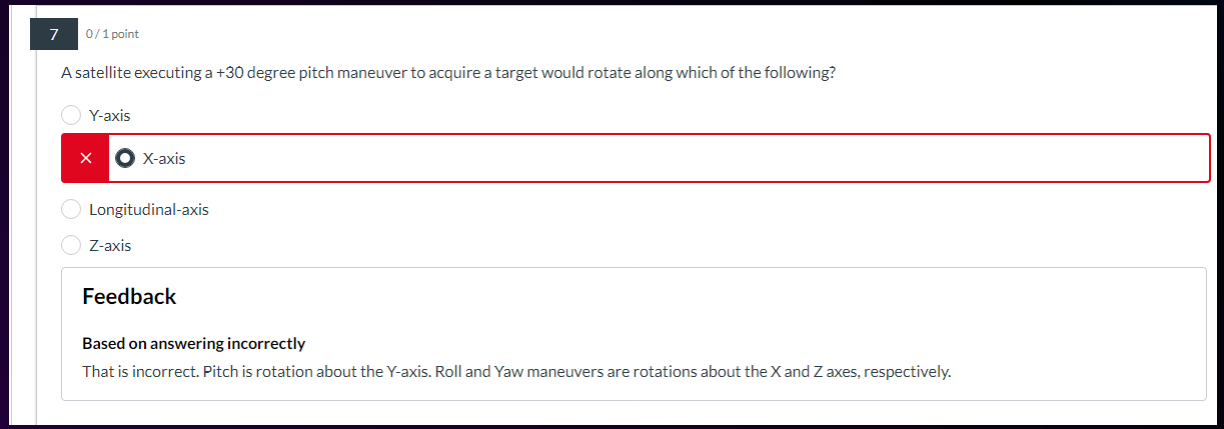
While the structured approach ensures clear progression, it limits long-term retention due to a lack of mixed practice:

- Four modules with content of increasing complexity
- Modular design and blocked practice model
- Each module covers one concept at a time but builds upon previous material

1. Module 1: Introduction to Space
2. Module 2: Satellite Operations Overview
3. Module 3: Satellite Subsystems Overview I
4. Module 4: Satellite Subsystems Overview II



USE OF EXTRINSIC FEEDBACK



Immediate multiple-choice quizzes after each module features extrinsic feedback for incorrect answers

- Useful to achieve passing grade to unlock the next module
- Aids short term test performance
- Lacks self-assessment aspect

MOTIVATIONAL ASSESSMENT

Extrinsic Motivation: Career advancement and professional development in aerospace. The course makes learners feel that they are part of a broader professional community, thus fulfilling their need for relatedness.

Intrinsic Motivation: Limited by a lack of autonomy (e.g., no choice in tasks or scenarios) but succeeds at creating a sense of mastery due to the instruction structure. Drop-down menus and interactive graphics further facilitate motivation through curiosity.

Finding: The course motivates through clear career relevance but could improve by offering more learner autonomy to enhance engagement.



REDESIGN RECOMMENDATIONS



REDESIGN RECOMMENDATIONS

Enhance Retention and Transfer

- Introduce retention and transfer tests to assess long-term knowledge application
- Incorporate mixed (random) practice to improve retention and adaptability

Revise Feedback Mechanisms

- Provide delayed or summary feedback for more effective intrinsic learning

Increase Intrinsic Motivation

- Allow learners to simulate different operational scenarios, increasing autonomy and engagement
- Add reflection activities to help learners connect content to personal and professional growth



CONCLUSION

Summary:

- Strengths: Well-structured modules, immediate feedback, career relevance.
- Opportunities: Improving retention, transfer of knowledge, and intrinsic motivation.
- Final Thought: The course is a solid foundation but could be more effective with added elements to foster deeper, long-term learning.

