



National Fire Academy

R0258 – Hazardous Materials Officer and Hazardous Materials Safety Officer

Version: 2nd Edition, 2nd Printing, November 2023

Quarter:

ACE Credit:

IACET Continuing Education Units: 6.0

Length of Course: 9 Days (60 hr., 10 min., Monday – Friday; Monday – Thursday)

Prerequisite: Yes

Curriculum: Hazardous Materials

Training Specialist: Dave Donohue

Instructor:

Instructor email/phone:

Classroom: J-

Meeting Time: 8 AM – 5 PM

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Course Description (Catalog)

R0258 – “Hazardous Materials Officer and Hazardous Materials Safety Officer.” This nine-day course is appropriate for hazardous materials personnel operating at technician and specialist levels. The course addresses systematic issues for operating at a hazardous materials incident safely. This is an instructor-facilitated, student-centered course that utilizes a risk-based approach to directing and coordinating hazardous materials/weapons of mass destruction (WMD) incident response from a hazardous materials officer’s and a hazardous materials safety officer’s perspective. Through decision-making activities, students will apply the course objectives which are defined by applicable regulations and standards.

Throughout the course, students work on scenario-based activities relating to the development of science-based, incident-related information that meets the needs of the community and the Incident Commander and is justifiable and compatible with the current and emerging standard of care.

By the end of the course, students should be able to:

- Implement a safe and effective risk-based response for a hazardous materials/WMD incident.
- Convey response information to hazardous materials team members and others.

Student Qualifications (Primary and Secondary Audience)

The target audience for this course includes personnel with hazardous materials response and mitigation functions including:

- Members of hazardous materials response teams including:
 - Hazardous materials officers or potential hazardous materials officers.
 - Hazardous materials safety officers or potential hazardous materials safety officers.
- Allied professionals associated with hazardous materials response.
- Training officers with responsibility for hazardous materials training.

Applicants to this course should be emergency response personnel or allied professionals having hazardous materials response or training responsibility certified at the technician/specialist level as referenced in Title 29 of the Code of Federal Regulations (CFR) Section 1910.120 or 40 CFR 311 and National Fire Protection Association (NFPA) standards.

Course Scope (Goal)

Prepare hazardous materials response personnel and allied professionals operating at technician and specialist levels to be able to utilize a risk-based approach to directing and coordinating hazardous materials/WMD incident response using applicable regulations, policies and standards for a safe incident environment.

Course Objectives (Course Learning Outcomes – TLOs)

After successfully completing this course, you will be able to accomplish the following:

- Describe the risk-based response process within the standard of care, given a hazardous materials/weapons of mass destruction (WMD) scenario.
- Use risk-based response to analyze the incident, determine the needs of the response and organize the hazardous materials response team, given the Incident Commander's (IC's) objectives.
- Plan a response within the capabilities and competencies of available personnel, personal protective equipment (PPE) and response equipment, given the Incident Commander's (IC's) objectives.
- Conduct a briefing for hazardous materials response personnel performing functions at the incident, given the Incident Commander's (IC's) objectives.
- Implement a response to favorably impact the incident consistent with Incident Command System (ICS) Form 208 HM, Site Safety and Control Plan and 215A-CG, Incident Action Plan Safety Analysis, given the Incident Commander's (IC's) objectives.
- Evaluate the progress of the planned response to ensure that response objectives are effective, and recommend adjustments to the Incident Command System (ICS) Form 208 HM, Site Safety and Control Plan, accordingly, given the Incident Commander's (IC's) objectives.
- Describe the termination activities for the incident, given a hazardous materials/weapons of mass destruction (WMD) scenario.
- Brief the Incident Commander (IC) on the plan, given a hazardous materials/weapons of mass destruction (WMD) scenario with the IC's objectives.

Course Delivery Method

The National Fire Academy (NFA) offers specialized training courses and advanced management programs of national impact in an academic classroom environment [on campus at the National Emergency Training Center \(NETC\) in Emmitsburg, Maryland](#). This classroom course is designed for the national level fire service officer from State and local fire service organizations. During this 9-day delivery, students will reside in dormitories provided on campus with classes conducted in classrooms designed for critical student/instructor interaction. All course materials are designed for interactive classroom environments, in either paper notebook or electronic formats.

Course Schedule

The purpose of the course schedule is to give you, at a glance, the required preparation, activities, and evaluation components of your course.

DAY 1	DAY 2
Unit 1: Introduction Unit 2: Risk-Based Response Process and Standard of Care	Recap of Day 1 Unit 3: Hazardous Materials Response Team Organization and Incident Command System Activity 3.1: Emergency Response Guidebook Knowledge Check
<i>Break</i>	<i>Break</i>
Unit 2: Risk-Based Response Process and Standard of Care (cont'd) Activity 2.1: Standard of Care — Federal Laws and Regulations	Unit 3: Hazardous Materials Response Team Organization and Incident Command System (cont'd) Activity 3.2 Hazardous Materials Terminology Matching Activity 3.3: Hazardous Materials Certification and Competency
<i>Lunch Break</i>	<i>Lunch Break</i>
Unit 2: Risk-Based Response Process and Standard of Care (cont'd) Activity 2.2: Hazardous Waste Operations and Emergency Response 29 Code of Federal Regulations 1910.120	Unit 3: Hazardous Materials Response Team Organization and Incident Command System (cont'd) Activity 3.4: Typing Hazardous Materials Response Teams
<i>Break</i>	<i>Break</i>
Unit 2: Risk-Based Response Process and Standard of Care (cont'd)	Unit 3: Hazardous Materials Response Team Organization and Incident Command System (cont'd)
<i>Break</i>	<i>Break</i>
Unit 2: Risk-Based Response Process and Standard of Care (cont'd) Activity 2.3: Risk-Based Response Unit 2: Risk-Based Response Process and Standard of Care (cont'd)	Unit 3: Hazardous Materials Response Team Organization and Incident Command System (cont'd) Activity 3.5: Hazardous Materials Response Team Positions — Knowledge, Skills and Abilities Activity 3.6: The Way Forward Research Group Activity 3.7: Who Am I?: Hazardous Materials Roles and Responsibilities

Note: This schedule is subject to modification by the instructors and approved by the training specialist.

DAY 3	DAY 4
Recap of Day 2 Unit 4: Developing the Plan of Action	Recap of Day 3 Unit 5: Communicating the Plan
<i>Break</i>	<i>Break</i>
Unit 4: Developing the Plan of Action (cont'd) Activity 4.1: Determining Operational Modes	Unit 5: Communicating the Plan (cont'd) Activity 5.1: Delivering the Pre-entry Briefing
<i>Lunch Break</i>	<i>Lunch Break</i>
Unit 4: Developing the Plan of Action (cont'd)	Unit 5: Communicating the Plan (cont'd) Activity 5.1: Delivering the Pre-entry Briefing (cont'd)
<i>Break</i>	<i>Break</i>
Unit 4: Developing the Plan of Action (cont'd) Activity 4.2: Completing Incident Command System Form 208 HM, Site Safety and Control Plan	Unit 5: Communicating the Plan (cont'd) Activity 5.1: Delivering the Pre-entry Briefing (cont'd)
<i>Break</i>	<i>Break</i>
Unit 4: Developing the Plan of Action (cont'd) Activity 4.2: Completing Incident Command System Form 208 HM, Site Safety and Control Plan (cont'd)	The Way Forward Project Preparation

DAY 5	DAY 6
Recap of Day 4 Unit 6: Implementing the Plan	Recap of Day 5 Unit 7: Evaluating the Progress of the Response Activity 7.1: Methods for Evaluating Incident Progress Activity 7.2: Best Practices for Evaluating Incident Progress
<i>Break</i>	<i>Break</i>
Unit 6: Implementing the Plan (cont'd) Activity 6.1: Implementing the Plan	Unit 7: Evaluating the Progress of the Response (cont'd) Activity 7.2: Best Practices for Evaluating Incident Progress (cont'd) Activity 7.3: Changes to the Plan of Action
<i>Lunch Break</i>	<i>Lunch Break</i>
Unit 6: Implementing the Plan (cont'd) Activity 6.1: Implementing the Plan (cont'd)	Unit 7: Evaluating the Progress of the Response (cont'd) Activity 7.3: Changes to the Plan of Action (cont'd)
<i>Break</i>	<i>Break</i>
Unit 6: Implementing the Plan (cont'd) Activity 6.1: Implementing the Plan (cont'd)	Unit 7: Evaluating the Progress of the Response (cont'd) Activity 7.3: Changes to the Plan of Action (cont'd)
<i>Break</i>	<i>Break</i>
The Way Forward Project Preparation	The Way Forward Project Preparation

DAY 7	DAY 8
Recap of Day 6 Unit 8: Terminating the Response	Recap of Day 7 Unit 9: Assessment Activity 9.1: Team Project
<i>Break</i>	<i>Break</i>
Unit 8: Terminating the Response (cont'd)	Unit 9: Assessment (cont'd) Activity 9.1: Team Project (cont'd)
<i>Lunch Break</i>	<i>Lunch Break</i>
Unit 8: Terminating the Response (cont'd) Activity 8.1: Incident Debrief	Unit 9: Assessment (cont'd) Activity 9.1: Team Project (cont'd)
<i>Break</i>	<i>Break</i>
Unit 8: Terminating the Response (cont'd) Activity 8.1: Incident Debrief (cont'd)	Unit 9: Assessment (cont'd) Activity 9.1: Team Project (cont'd)
<i>Break</i>	<i>Break</i>
Unit 8: Terminating the Response (cont'd) Activity 8.2: Cost Recovery Analysis	Unit 9: Assessment (cont'd) Activity 9.1: Team Project (cont'd)

DAY 9
Recap of Day 8 Unit 9: Assessment (cont'd) Activity 9.2: Final Exam
<i>Break</i>
Unit 9: Assessment (cont'd) Activity 9.3: The Way Forward: Presentation
<i>Break</i>
Unit 9: Assessment (cont'd) Activity 9.3: The Way Forward: Presentation (cont'd)
<i>Lunch Break</i>
Unit 9: Assessment (cont'd) Activity 9.3: The Way Forward: Presentation (cont'd)
<i>Break</i>
Course Evaluation Graduation

Course Resources (Instructional Materials)

In order to be fully prepared, obtain a copy of the required textbooks and other instructional materials prior to the first day of class.

Required Readings

The student must complete required readings during the course to be able to thoughtfully participate in discussions and activities.

None.

Suggested Reading/Resources

Suggested readings and resources are not evaluated, but may enhance the student's understanding, serve as additional sources for citation and promote discussion of course material.

None.

Required Resources (Course Textbook)

Student Manual.

Supplemental Resources (Supplemental Course Textbook)

None.

Grading Methodology (Evaluation Procedures)

The students' final grades will be computed using the final exam. The final exam will include 50 multiple-choice questions (25% of the total grade). The exam covers all the information in the Student Manual (SM), as well as the concepts presented during presentations and class discussions. In addition, Activity 9.1: Team Project (50% of the total grade) and Activity 9.3: The Way Forward: Presentation (25% of the total grade) will be evaluated for contribution to the final grade.

Grade		Percentage range
A	=	90-100
B	=	80-89
C	=	70-79
F	=	69 or less

Passing is a C (70%).

Required Reading Assignments

Student completion of reading assignments will be done via evaluation of their class participation and will not be a separately graded activity.

Suggested Readings

Suggested readings are not evaluated, but may enhance the student's understanding and promote discussion of course material.

Course Outline

Unit 1: Introduction (Day 1)

Objectives

None.

Unit 2: Risk-Based Response Process and Standard of Care (Day 1)

Objectives

Terminal Objective

The students will be able to:

- 2.1 Describe the risk-based response process within the standard of care, given a hazardous materials/weapons of mass destruction (WMD) scenario.

Enabling Objectives

The students will be able to:

- 2.1 Describe the analysis process of risk-based response according to the standard of care.
- 2.2 Describe hazard assessment methods.
- 2.3 Describe methods for evaluating consequences.
- 2.4 Determine safe response actions using a risk-based response process.

Unit 3: Hazardous Materials Response Team Organization and Incident Command System (Day 2)

Objectives

Terminal Objective

The students will be able to:

- 3.1 Use risk-based response to analyze the incident, determine the needs of the response and organize the hazardous materials response team, given the Incident Commander's (IC's) objectives.

Enabling Objectives

The students will be able to:

- 3.1 Define the levels of hazardous materials training and certifications.
- 3.2 Analyze the relationship between competency and certification.
- 3.3 Identify resource typing and credentialing related to hazardous materials response.
- 3.4 Describe the needs of the response based on facts, science and circumstances.
- 3.5 Describe the roles and responsibilities of the hazardous materials response team members.

Unit 4: Developing the Plan of Action (Day 3)

Objectives

Terminal Objective

The students will be able to:

- 4.1 Plan a response within the capabilities and competencies of available personnel, personal protective equipment (PPE) and response equipment, given the Incident Commander's (IC's) objectives.

Enabling Objectives

The students will be able to:

- 4.1 Analyze the principles of incident management in order to accomplish the IC's objectives.

- 4.2 Explain the Incident Action Plan (IAP) development process.
- 4.3 Develop and complete an Incident Command System (ICS) Form 208 HM, Site Safety and Control Plan and 215A-CG, Incident Action Plan Safety Analysis.

Unit 5: Communicating the Plan (Day 4)

Objectives

Terminal Objective

The students will be able to:

- 5.1 Conduct a briefing for hazardous materials response personnel performing functions at the incident, given the Incident Commander's (IC's) objectives.

Enabling Objective

The students will be able to:

- 5.1 Describe the characteristics of a comprehensive briefing.

Unit 6: Implementing the Plan (Day 5)

Objectives

Terminal Objective

The students will be able to:

- 6.1 Implement a response to favorably impact the incident consistent with Incident Command System (ICS) Form 208 HM, Site Safety and Control Plan and 215A-CG, Incident Action Plan Safety Analysis, given the Incident Commander's (IC's) objectives.

Enabling Objectives

The students will be able to:

- 6.1 Determine effective roles and responsibilities of the hazardous materials response team members to ensure a safe response.
- 6.2 Describe the implementation of best practices regarding incident response equipment to ensure a safe response.

- 6.3 Describe the implementation of best practices regarding incident response personnel to ensure a safe response.
- 6.4 Describe the implementation of best practices regarding incident response documentation to ensure a safe response.

Unit 7: Evaluating the Progress of the Response (Day 6)

Objectives

Terminal Objective

The students will be able to:

- 7.1 Evaluate the progress of the planned response to ensure that response objectives are effective, and recommend adjustments to the Incident Command System (ICS) Form 208 HM, Site Safety and Control Plan, accordingly, given the Incident Commander's (IC's) objectives.

Enabling Objectives

The students will be able to:

- 7.1 Describe the elements of information collection on scene.
- 7.2 Identify considerations for evaluating the progress of the response.
- 7.3 Describe the implementation of new tactics based on the progress of the incident.

Unit 8: Terminating the Response (Day 7)

Objectives

Terminal Objective

The students will be able to:

- 8.1 Describe the termination activities for the incident, given a hazardous materials/weapons of mass destruction (WMD) scenario.

Enabling Objectives

The students will be able to:

- 8.1 Describe the required incident documentation.
- 8.2 Describe termination activities.
- 8.3 Identify considerations for conducting a debrief for incident response personnel.
- 8.4 Develop a cost recovery analysis.

Unit 9: Assessment (Day 8)

Objectives

Terminal Objective

The students will be able to:

- 9.1 Brief the Incident Commander (IC) on the plan, given a hazardous materials/weapons of mass destruction (WMD) scenario with the IC's objectives.

Enabling Objectives

The students will be able to:

- 9.1 Analyze the incident to determine the needs of the response and organize the hazardous materials response team.
- 9.2 Plan a response within the capabilities and competencies of available personnel, personal protective equipment (PPE) and response equipment.
- 9.3 Conduct a briefing for hazardous materials response personnel performing functions at the incident.
- 9.4 Conduct a debriefing for incident response personnel.
- 9.5 Demonstrate the ability to communicate new information related to hazardous materials/WMD using the principles of a good briefing.

Policies

Class Attendance and Cancellation Policy

Attendance

- You are required to attend all sessions of the course. If you do not, you may not receive a certificate, and your stipend may be denied.
- If you need to depart campus early and miss any portion of the course and/or graduation, you must make the request in writing to the NFA training specialist. The training specialist, in collaboration with the superintendent, may waive the attendance requirement in order to accommodate you with extraordinary circumstances as long as you complete all course requirements. If you receive approval for departing early, you must forward the approval to the Admissions Office so your stipend reimbursement is not limited.

Student Substitutions

Substitutions for NFA courses are made from waiting lists; your fire department can't send someone in your place.

Cancellations or No-Shows

NFA's mission for delivery of courses is impaired significantly by cancellations and no-shows. It is very difficult and costly to recruit students at the last minute. Currently there is a two-year ban on student attendance for students who are no-shows or cancel within 30 days of the course start date without a valid reason. If you receive such a restriction, your supervisor needs to send a letter to our Admissions Office explaining the cancellation/no-show.

Course Failure

If you fail an on-campus course, you will not be issued a stipend for that course. You can reapply for the failed course or any other NFA course and go through the random selection process. You don't have to successfully complete the failed course before attending another NFA course.

Student Code of Conduct Policy

Students, instructors and staff are expected to treat each other with respect at all times. Inappropriate behavior will not be tolerated and may result in removal from campus and denial of stipends.

Writing Expectations

Student writing will conform to the generally accepted academic standards for college papers. Papers will reflect the original work of the student and give appropriate credit through citations for ideas belonging to other authors, publications or organizations. Student written work should be free of grammatical and syntax errors, free of profanity or obscene language or ideas, and reflect critical thinking related to the course subject matter.

Citation and Reference Style

Attention Please: Students will follow the APA, Sixth Edition as the sole citation and reference style used in written work submitted as part of coursework to NFA. Assignments completed in a narrative essay, composition format, abstract, and discussion posts must follow the citation style cited in the APA, Sixth Edition.

Late Assignments

Students are expected to submit classroom assignments by the posted due date (11:59 p.m. EDT/EST) and to complete the course according to the published class schedule. As adults, students, and working professionals, you must manage competing demands on your time. Discussion board postings submitted within 3 days after the submission deadline will receive up to a 20% deduction. Those that do not submit their discussion board postings within this timeline will receive a “0” grade for the week. Final assignment papers will not be accepted after the deadline. Any paper submitted after the deadline will receive a “0” grade for that assignment.

Netiquette

Online learning promotes the advancement of knowledge through positive and constructive debate – both inside and outside the classroom. Forums on the Internet, however, can occasionally degenerate into needless insults and “flaming.” Such activity and the loss of good manners are not acceptable in a professional learning setting – basic academic rules of good behavior and proper “Netiquette” must persist. Remember that you are in a place for the rewards and excitement of learning which does not include descent to personal attacks or student attempts to stifle the forum of others.

- Technology Limitations. While you should feel free to explore the full-range of creative composition in your formal papers, keep e-mail layouts simple. The NFA Online classroom may not fully support MIME or HTML encoded messages, which means that bold face, italics, underlining, and a variety of color-coding or other visual effects will not translate in your e-mail messages.
- Humor Note. Despite the best of intentions, jokes and especially satire can easily get lost or taken seriously. If you feel the need for humor, you may wish to add “emoticons” to help alert your readers: ;-), :), ☺ .

Disclaimer Statement

Course content may vary from the outline to meet the needs of this particular group.

Grading

Please review the following rubrics that explain how grades will be awarded.

Students who do not complete the entire course will be awarded an Incomplete (I) grade. In accordance with National Fire Academy academic policies, an Incomplete (I) grade must be removed by the end of the next semester following the course, or it automatically becomes a Failing (F) grade.

If you fail an on-campus course, you will not be issued a stipend for that course. You can reapply for the failed course or any other NFA course and go through the random selection process. You don't have to successfully complete the failed course before attending another NFA course.

http://www.usfa.fema.gov/training/nfa/admissions/student_policies.html

Academic Honesty

Students are expected to exhibit exemplary ethical behavior and conduct as part of the NFA community and society as a whole. Acts of academic dishonesty including cheating, plagiarism, deliberate falsification, and other unethical behaviors will not be tolerated.

Students are expected to report academic misconduct when they witness a violation. All cases of academic misconduct shall be reported by the instructor to the Training Specialist.

If a student is found to have engaged in misconduct and the allegations are upheld, the penalties may include, but are not limited to one or a combination of the following:

- expulsion,
- withholding of stipend or forfeiture of stipend paid,
- exclusion from future classes for a specified period; depending on the severity it could range from 1-10 years, and/or
- forfeiture of certificate for course(s) enrolled in at NETC.

Refer to NFA-specific Standard Operating Procedure 700.1 – *Academic Code of Conduct and Ethics* for more information.

GRADING RUBRICS

ACTIVITY 9.1

Team Project Grading Rubric

Assignment: Working in your small group, implement, evaluate and terminate the incident based on the provided scenario.

Each small group member receives 5 points for participation (0 points for nonparticipation). The table below details the remaining point distribution for Activity 9.1. (Maximum points total: 25)

Exemplary: 9-10 points	More than 90% of the forms are complete. Of the completed portions, more than 90% of the information is accurate. Written information is very clear and well organized.
Proficient: 7-8 points	More than 75% of the forms are complete. Of the completed portions, more than 75% but less than 90% of the information is accurate. The written information is very clear and well organized.
Acceptable: 5-6 points	Approximately 75% of the forms are complete. Of the completed portions, more than 50% but less than 75% of the information is accurate. The written information is mostly clear and organized.
Developing: 3-4 points	Approximately 50% of the forms are complete. Of the completed portions, more than 20% but less than 50% of the information is accurate. The written information needs improvement in clarity and organization.
Deficient: 1-2 points	Less than 50% of the forms are complete. Of the completed portions, less than 20% of the information is accurate. The written information lacks clarity and organization.
No effort: 0 points	No ICS forms are completed.
Element of performance	ICS forms. (10 pts. max)

Element of performance	No effort: 0 points	Deficient: 1-2 points	Developing: 3-4 points	Acceptable: 5-6 points	Proficient: 7-8 points	Exemplary: 9-10 points
Communication of information through briefings. (10 pts. max)	No effort presented.	The briefing includes one or two required elements, and information is communicated with difficulty without appropriate hazardous materials response team members assigned. Group members are not able to respond to any of the clarifying questions from peers and instructors.	The briefing includes less than half of the required elements, and information is communicated with little clarity without appropriate hazardous materials response team members assigned. Group members are not able to respond to most of the clarifying questions from peers and instructors.	The briefing includes more than half of the required elements with more than two elements missing, and information is communicated with some clarity by appropriate hazardous materials response team members. Group members are able to respond to approximately half of the clarifying questions from peers and instructors.	The briefing includes required elements with the exception of one or two missing elements, and information is communicated clearly by appropriate hazardous materials response team members. Group members are able to respond to most of the clarifying questions from peers and instructors.	The briefing includes all required elements, and information is communicated clearly by appropriate hazardous materials response team members. Group members are able to respond to clarifying questions from peers and instructors.

ACTIVITY 9.3

The Way Forward: Presentation Grading Rubric

Assignment: Working in your assigned group from Activity 3.6, research the approved topic related to hazardous materials/WMD and prepare and present your findings to the larger class using the skills you learned about delivering effective briefings.

The table below details the point distribution for Activity 9.3 (maximum points total: 25).

Element of performance	No effort: 0 points	Deficient: 1-3 points	Developing: 4-6 points	Proficient: 7-9 points	Exemplary: 10-15 points
Clarity, conciseness, accuracy and preparedness in presenting information and fielding questions on the approved topic. (15 pts. max)	No presentation provided.	Information provided in the presentation and the summary handout was unclear, unorganized and poorly planned. The audience was disengaged. Group members were unable to answer questions asked by their peers and/or instructors.	Information provided in the presentation and the summary handout was organized but contained some inaccuracies and/or excessive technical jargon, making details of the presentation unrelatable to their audience. Group members were able to answer some questions asked by their peers and/or instructors.	Information provided in the presentation and the summary handout was very well organized. The audience was engaged and the presentation created lively discussions around the presented topic. Group members were able to answer most questions asked by their peers and/or instructors.	Information provided in the presentation and the summary handout was extremely well organized, easy to follow, and presented in a professional, engaging and innovative way that created lively discussions around the presented topic. Group members were able to answer and provide detailed justifications for all questions asked by their peers and/or instructors.

Element of performance	No effort: 0 points	Deficient: 1-2 points	Developing: 3-4 points	Proficient: 5-6 points	Exemplary: 7-10 points
Collaboration and contribution. (10 pts. max)	No effort presented to collaborate among the group members.	More than 50% of the group members did not contribute to the research, preparation and delivery of the presentation.	More than 50% of the group contributed to the delivery of the presentation, but only one or two members contributed to the research and preparation activities.	All group members contributed individually to equally divided assignments for research, preparation and delivery of the presentation. The group had some communication during research and preparation, but mostly worked individually.	All group members contributed individually to equally divided assignments for research, preparation and delivery of the presentation. The group collaborated frequently to establish clear connection and communication among the group members.