# OCTAVE Allegro Risk Assessment

System: Securing a University's Online Learning Platform

| **Allegro Worksheet 1** | **RISK MEASUREMENT CRITERIA – REPUTATION AND CUSTOMER CONFIDENCE** | | |
|---|---|---|---|
| **Impact Area** | **Low** | **Moderate** | **High** |
| *Reputation* | Reputation is minimally affected; little or no effort or expense is required to recover. | Reputation is damaged, and some effort and expense is required to recover. | Reputation is irrevocably destroyed or damaged. |
| *Customer Loss* | Less than 5% reduction in customers due to loss of confidence | 5% to 15% reduction in customers due to loss of confidence | More than 15% reduction in customers due to loss of confidence |
| *Academic Trust:* | Negative social media attention, temporary complaints | News coverage or external audit | Regulatory involvement or university ranking impact |

| Allegro Worksheet 2 | RISK MEASUREMENT CRITERIA – FINANCIAL | | |
|---|---|---|---|
| **Impact Area** | **Low** | **Moderate** | **High** |
| *Operating Costs* | Increase of less than 5% in yearly operating costs | Yearly operating costs increase by 5% to 15%. | Yearly operating costs increase by more than 15%. |
| *Revenue Loss* | Less than 2% yearly revenue loss | 2% to 10% yearly revenue loss | Greater than 10% yearly revenue loss |
| *One-Time Financial Loss* | One-time financial cost of less than $5,000 | One-time financial cost of $5,000 to $50,000 | One-time financial cost greater than $50,000 |
| *Incident Response* | Minor system restoration | Need to reimplement major services | Major infrastructure overhaul |

| Allegro Worksheet 3 | RISK MEASUREMENT CRITERIA – PRODUCTIVITY | | |
|---|---|---|---|
| **Impact Area** | **Low** | **Moderate** | **High** |
| *Staff Hours* | Staff work hours are increased by less than 10% for 1 to 3 day(s). | Staff work hours are increased between 10% and 20% for 4 to 6 day(s). | Staff work hours are increased by greater than 30% for 7 to 14 day(s). |
| *Learning Disruption* | Minor assignment delays | Missed exams or coursework | Full academic calendar disruption |

| Allegro Worksheet 4 | RISK MEASUREMENT CRITERIA – SAFETY AND HEALTH | | |
|---|---|---|---|
| **Impact Area** | **Low** | **Moderate** | **High** |
| *Life* | No loss or significant threat to customers' or staff members' lives | Customers' or staff members' lives are threatened, but they will recover after receiving medical treatment. | Loss of customers' or staff members' lives |
| *Health* | Minimal, immediately treatable degradation in customers' or staff members' health with recovery within four days | Temporary or recoverable impairment of customers' or staff members' health | Permanent impairment of significant aspects of customers' or staff members' health |
| *Safety* | Safety questioned | Safety affected | Safety violated |

| Allegro Worksheet 5 | RISK MEASUREMENT CRITERIA – FINES AND LEGAL PENALTIES | | |
|---|---|---|---|
| **Impact Area** | **Low** | **Moderate** | **High** |
| *Fines* | Fines less than $10,000 are levied. | Fines between $10,000 and $100,000 are levied. | Fines greater than $100,000 are levied. |
| *Lawsuits* | Non-frivolous lawsuit or lawsuits less than $5,000 are filed against the organization, or frivolous lawsuit(s) are filed against the organization. | Non-frivolous lawsuit or lawsuits between $5,000 and $50,000 are filed against the organization. | Non-frivolous lawsuit or lawsuits greater than $50,000 are filed against the organization. |
| *Investigations* | No queries from government or other investigative organizations | Government or other investigative organization requests information or records (low profile). | Government or other investigative organization initiates a high-profile, in-depth investigation into organizational practices. |

| Allegro Worksheet 6 | RISK MEASUREMENT CRITERIA – USER DEFINED | | |
|---|---|---|---|
| **Impact Area** | **Low** | **Moderate** | **High** |
| *Academic Integrity* | Minor data exposure | Tampering with assignments or grades | Widespread grade manipulation or leaks |
| *Student Satisfaction* | Minor dissatisfaction; few complaints. | Noticeable complaints affecting course evaluations. | Widespread dissatisfaction causing student retention problems. |

| Allegro Worksheet 7 | IMPACT AREA PRIORITIZATION WORKSHEET |
|---|---|
| **PRIORITY** | **IMPACT AREAS** |
| 1 | **Reputation and Customer Confidence** |
| 3 | **Financial** |
| 2 | **Productivity** |
| 4 | **Safety and Health** |
| 6 | **Fines and Legal Penalties** |
| 5 | **User Defined** |

| **Allegro Worksheet 8** | **CRITICAL INFORMATION ASSET PROFILE** | |
|---|---|---|
| **(1) Critical Asset**<br>*What is the critical information asset?* | **(2) Rationale for Selection**<br>*Why is this information asset important to the organization?* | **(3) Description**<br>*What is the agreed-upon description of this information asset?* |
| University's Online Learning Platform | It is vital for delivering education, conducting assessments, maintaining academic records, and communication. | An online platform that supports course delivery, assignments, discussions, grading, and examinations for students and faculty. |
| **(4) Owner(s)**<br>*Who owns this information asset?* | | |
| IT Department and Academic Affairs Office. | | |
| **(5) Security Requirements**<br>*What are the security requirements for this information asset?* | | |
| ❑ **Confidentiality** | Only authorized personnel can view this information asset, as follows: | **Students may access only their own courses, grades, and personal data.**<br>**Faculty and instructors can access student submissions, course materials, and grading information.** |
| ❑ **Integrity** | Only authorized personnel can modify this information asset, as follows: | **Instructors and professors can modify course content, grades, and assessment results.** |
| ❑ **Availability** | This asset must be available for these personnel to do their jobs, as follows: | Students must have continuous access to course materials, assignment submissions, discussion forums, and exams at all times during academic terms.<br>Faculty **and Instructors** must have uninterrupted access to create, manage, and grade course content to meet academic deadlines. |
| | This asset must be available for 24 hours,7 days/week, 50 weeks/year. | Administrative **Staff** must be able to access the system for enrollment management, academic record keeping, and reporting functions. |
| ❑ **Other** | This asset has special regulatory compliance protection requirements, as follows: | Must adhere to **GDPR**<br>**Must comply with FERPA** |

| **(6) Most Important Security Requirement**<br><br>*What is the most important security requirement for this information asset?* | | | |
|---|---|---|---|
| ❑ Confidentiality | ❑ Integrity | ❑ Availability | ❑ Other |

| Allegro Worksheet 9a | INFORMATION ASSET RISK ENVIRONMENT MAP (TECHNICAL) |
|---|---|
| **INTERNAL** | |
| **CONTAINER DESCRIPTION** | **OWNER(S)** |
| **1.** University Learning Management System (LMS) servers | University IT Department |
| **2.** Database Servers | Database Administrator Team |
| **3.** Backup and recovery systems | IT Operations |
| **4.** Authentication servers | IT Security Team |
| **EXTERNAL** | |
| **CONTAINER DESCRIPTION** | **OWNER(S)** |
| **1.** Cloud hosting provider | Amazon AWS |
| **2.** Third-party plagiarism detection systems | Vendor (IT department oversees) |
| **3.** Online proctoring software | Vendor (managed by Academic Affairs) |

| Allegro Worksheet 9b | INFORMATION ASSET RISK ENVIRONMENT MAP (PHYSICAL) |
|---|---|
| **INTERNAL** | |
| **CONTAINER DESCRIPTION** | **OWNER(S)** |
| **1.** data server rooms | University Facilities |
| **2.** Campus networking closets and cabling infrastructure | IT Network Team |
| **3.** Computer labs used by students | **Lab Technicians**<br>**IT Support** |
| **EXTERNAL** | |
| **CONTAINER DESCRIPTION** | **OWNER(S)** |
| • **Cloud vendor's data centers** | Amazon AWS |
| • **Off-site backup facilities** | Disaster Recovery Provider |

| Allegro Worksheet 9c | INFORMATION ASSET RISK ENVIRONMENT MAP (PEOPLE) |
|---|---|
| **INTERNAL PERSONNEL** | |
| **NAME OR ROLE/RESPONSIBILITY** | **DEPARTMENT OR UNIT** |
| **1.** Students | Students Affairs |
| **2.** **Faculty and Instructors** | Academic Affairs |
| **3.** IT Administrators | IT Department |
| **EXTERNAL PERSONNEL** | |
| **CONTRACTOR, VENDOR, ETC.** | **ORGANIZATION** |
| **1.** Cloud service account managers | Amazon AWS |
| **2.** External cybersecurity consultants | PWC |

| Allegro - Worksheet 10 | | INFORMATION ASSET RISK WORKSHEET | | |
|---|---|---|---|---|
| Information Asset Risk | Information Asset | University Online Learning Platform (LMS) | | |
| | Area of Concern | *Platform security vulnerabilities* | | |
| | Threat | (1) Actor<br>*Who would exploit the area of concern or threat?* | hacker | |
| | | (2) Means<br>*How would the actor do it? What would they do?* | • Brute force attack on weak passwords<br>• exploiting known vulnerabilities in LMS software<br>• phishing faculty credentials | |
| | | (3) Motive<br>*What is the actor's reason for doing it?* | • To change grades in favor of themselves or others<br>• sabotage academic integrity | |
| | | (4) Outcome<br>*What would be the resulting effect on the information asset?* | ❑ **Disclosure** ❑ **Destruction**<br>❑ **Modification** ❑ **Interruption** | |
| | | (5) Security Requirements<br>*How would the information asset's security requirements be breached?* | Breach of **Integrity** (modifying academic records without authorization) | |
| | | (6) Probability<br>*What is the likelihood that this threat scenario could occur?* | ❑ **High** | ❑ **Medium** ❑ **Low** |

| (7) Consequences<br>*What are the consequences to the organization or the information asset owner as a result of the outcome and breach of security requirements?* | (8) Severity<br>*How severe are these consequences to the organization or asset owner by impact area?* | | |
|---|---|---|---|
| | **Impact Area** | **Value** | **Score** |
| Loss of academic integrity | Reputation & Customer Confidence | High | 3 |
| | Financial | Moderate | 2 |
| Student and faculty distrust the platform | Productivity | Moderate | 2 |
| | Safety & Health | low | 1 |
| Possible lawsuits from affected students | Fines & Legal Penalties | Moderate | 2 |

| | | | | |
|---|---|---|---|---|
| | | User Defined Impact Area | High | 3 |
| | | | **Relative Risk Score** | **13** |

**(9) Risk Mitigation**

*Based on the total score for this risk, what action will you take?*

| ❑ **Accept** | ❑ **Defer** | ❑ **Mitigate** | ❑ **Transfer** |
|---|---|---|---|

**For the risks that you decide to mitigate, perform the following:**

| *On what container would you apply controls?* | *What administrative, technical, and physical controls would you apply on this container? What residual risk would still be accepted by the organization?* |
|---|---|
| LMS Servers and Databases | unknown vulnerabilities (zero-day attacks) |
| Authentication Systems | Residual risk remains from social engineering attacks (phishing attacks) |
| Backup and Recovery Systems | backup corruption or delayed restoration |
| Cloud Hosted Environment | cloud provider service outages or misconfigurations |