Universidad de Guadalajara
Centro Universitario de los Valles

SOFTWARE CONFIGURATION MANAGEMENT

Software Configuration Management Plans

Teacher: Omar Ali Zatarain Duran

Author: Elizabeth Baños Arias

TABLE OF CONTENTS

1. INTRODUCTION

1.1 Purpose

This plan defines the software configuration management (SCM) activities that will be applied to the development of the academic and administrative system for the graduate program in Software Engineering at CUValles.

1.2 Scope

The plan covers all the system configuration elements that are directly or indirectly involved in the academic and administrative functions of the postgraduate program. These elements include:

- **Users:** components related to authentication, registration, editing, and password recovery.
- **Students, teachers, and academic processes:** modules for registration, editing, searching, deleting, viewing, and exporting data.
- **Technical documentation:** installation guides, maintenance manuals, testing documents, and user manuals.
- **Database scripts and structure:** SQL files and connection settings.

1.3 Key Definitions

Acronym	Full Form
SCM	Software Configuration Management
CI	Configuration Item
CCB	Configuration Control Board
CR	Change Request
FR	Functional Requirements
NFR	Non-Functional Requirements
HR	Human Resources

2. CONFIGURATION MANAGEMENT ORGANIZATION

2.1 Roles and Responsibilities

Role	Responsibility
Configuration Manager (SCM Manager)	Supervises and ensures the plan is followed.
Analyst	Analyzes change requests, identifies affected areas, and documents functional and non-functional requirements.
Developers / QA Manager	Manage version control and software releases.
Change Control Board (CCB)	Reviews and approves all proposed changes.

2.2 Composition of the CCB

Role	Responsibilities
Project Manager	Evaluate the global impact of the changes.
QA Manager	Verify quality and risk.
Client Representative	Validate requirements and priorities.
SCM Administrator	Record decisions and maintain traceability.
Lawyer	Ensure legal compliance and review contracts or agreements.
Fincianal	Analyze the economic viability of changes, estimate costs, and ensure budget alignment.
Human Resources Manager	Evaluate the impact of changes on staff, manage resource allocation, and ensure appropriate training and communication.

3. CHANGE MANAGEMENT

3.1 Change Request

CR1: The client requests distributed architecture based on the geographical sites of a series of colleges. This implies the creation of a new module that integrates college systems that work in locations worldwide. The implications of the CR are complying with the regulations of each country and the differences in the infrastructure of the internet services, browsers, and allowed SQL Managers.

CR2: The local government issued a law that requires students who do not attend school regularly to report to a government server.

CR3: The client requests a module for checking the daily activities of teachers, including entering the school premises, exiting once the labor is finished, and registration of classes delivered daily.

Analysis of Change Requests

CR	Understanding the Change Request	Functional / Non-Functional Requirements	Affected Areas	Activities	Resources	Risks
CR1	The client wants a distributed system to connect universities in different places. It must follow local laws, work with the internet and	**FR:** • Connect systems of many universities. • Login and share data between campuses. • Central and regional management. **NFR**:	• System design (from one place → many places). • Backend (services and APIs). • Shared database. • Security (higher risk because there	• Analysis (2 weeks). • Backend/frontend coding (4 weeks). • Testing and integration (2 weeks). • Deployment and documents (1 week).	• Time: 8 weeks. • Budget: 40,000 MXN. • HR: 2 developers, 1 QA, 1 analyst, 1 configuration manager	• *Technical:* system not compatible, slow internet. • *Legal:* not follow the law. • *Operational:* difficult setup, system too heavy.

	computers, and be compatible with browsers and SQL.	• Follow each country's laws. • Good speed and internet connection. • Work with browsers and SQL.	are many global connections. Need for data encryption, strong authentication, and constant checks). • Legal rules (must follow data protection laws of each country. There is a risk if data moves between countries without control).			
CR2	It is required to create a new attendance module that automatically finds students who are absent and sends reports to the government server, following the	**FR**: • Detect and record student absences. • Create and send automatic reports to the government server. • Save the history of reports sent and their status.	• New Assistance module. • Backend: automatic services for sending and checking connection. • Database: tables for attendance	• Analysis (1 week). • Make the sending service (2 weeks). • Test connection (1 week). • Documents and training (1 week).	• Time: 5 weeks. • Budget: 25,000 MXN. • HR: 1 developer, 1 analyst, 1 QA.	• *Legal:* fines or problems with the law. • *Technical:* server or connection fails. • *Security:* data not protected.

	current legal rules. This module must protect personal data and keep a safe and reliable connection with external services.	**NFR**: • Keep data safe and private, following legal rules. • The communication service must always be available. • Work with the current system without reducing performance.	control and report logs. • Security: use data encryption when sending information.			
CR3	The client wants a module to check teachers' daily work, like entry, exit, and classes.	**FR**: • Record entry and exit time. • Record classes. • Make daily activity reports. **NFR**: • Fast response. • Easy to use. • Keep data private and safe.	• New teacher module (frontend/backend). • Database (new tables). • Connection with login system. • Reports and searches.	• Analysis (5 days). • Backend/frontend coding (1 week). • Testing (3 days). • Documents (2 days).	• Time: 3 weeks. • Budget: 15,000 MXN. • HR: 1 developer, 1 QA, 1 analyst.	• *Technical:* time records do not correct. • *Operational:* teachers do not want to use it. • *Legal:* personal data problems.

3.2 Policies

Each change request (CR) must have a unique identifier.

Every CR must include a technical, legal, operational, and resource analysis before it is approved.

The Change Control Board (CCB) is responsible for approving or rejecting changes based on the risks and how they align with the project goals

BUDGET POLICIES

- Every change request (CR) must have an approved budget before it starts.
- No change can be made without enough money.
- Up to **20% more money** is allowed if the change is difficult, global, or has outside problems.
- Up to **10% risk** is allowed for big changes that need quality control.
- Up to **5% risk** is allowed for small or maintenance changes.
- All expenses must be written in the project's financial system and connected to the CR number.
- If there is not enough money, changes will be done in this order: Legal changes, Keep the system working, Improve functions.
- When each change is finished, a financial report must show planned and real costs and explain the differences.

TIME POLICIES

- Each CR must have a work plan with estimated dates.
- Up to **30% more time** can be given if the change has technical risks.
- Up to **20% more time** is okay for changes that affect part of the system.
- Only **15% more time** is allowed for small changes, like database or interface fixes.
- All activity dates must be written in the project calendar.

BUDGET AND TIME RELATED POLICY

- For every 10% increase in execution time, the total cost may go up by 3–5%.
- It must be checked that any extra time stays inside the approved budget.
- If the extra time makes the cost higher than the limit, the change must be adjusted, planned again, or reviewed by the CCB.
- Every change must have an approved budget and schedule before it starts.
- At the end of each change, a report about money and time will be made, comparing planned and real values, and explaining any differences.
- Any difference bigger than the allowed limit must be reported and explained to the CCB.

HUMAN RESOURCES POLICIES

- Each CR must have a clear team with roles for every person.
- No change can start if the team is not available.
- Team members must have the right technical skills.
- For difficult changes, training must be given if needed.
- When the change ends, the team’s time and quality must be checked.