INFO380 System Analysis & Design

Changing the Way You Change Your Curriculum

System Analysis and Recommendation for
iSchool Curriculum Change Process

Evan Cottingham, Sherry Gao, Huijie Guan, Tim Ha,
Gabriel Ho, Daniel Hoang
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Contents

1 Executive Summary

Identify and design a digital solution to replace the paper forms through the conception of an information system to improve the creation, movement, storage, and retrieval of documents and forms associated with curriculum changes within internal iSchool committees. Actual implementation of the design is out of the scope of this project and our team.

In this project, we will specifically study, analyze and understand the internal iSchool processes surrounding curriculum change, updating, introduction, and removal. Our system will provide a collaborative space where faculty will be able to access and edit documents in motion, and program chairs be able to monitor status and progress of said documents. In addition, the system will be able to track changes and versions of documents as they evolve and keep this data in a historical repository. This includes approved and unapproved curriculum information that can be easily viewed by relevant faculty and staff. The system will also support "age tracking" so that the curriculum department will be able to easily monitor how old curriculums are and create a standardized process for review and re-justification of aging curriculum to ensure that the iSchool keeps up to date with teachings. An additional feature will be the ability to quickly summarize what is in the various curriculum repositories (current and historical) in the form of reports that make it easy for the curriculum department to check on the overall status of the iSchool curriculum from a high level. Lastly, we will provide documentation regarding the new system that can be circulated to faculty and staff that can serve as standard operating procedures for the various tasks and processes.

2 Overview

2.1 Client Overview

Our client is the iSchool at UW, specifically Gary Winchester, the Curriculum Specialist. Currently, Gary manages manually tracking curriculum change documents throughout their review and approval process as well as adds the changes into a SharePoint document library for record keeping. Gary has contracted us to assess the current system and recommend a solution to make the process more efficient.

2.2 Project Overview & Scope

Gary wants us to analyze the curriculum process and provide an IS solution to improve the creation, movement, storage, and retrieval of documents through this process. In particular, we need to assess the support for the creation of curriculum documentation and provide a documentation resource for the faculty and committee members, tracking the curriculum process as it moves from creation through internal committees to central UW processes and then to completion, including a collaborative space where documents can be edited in motion, tracking when curriculum reaches a certain age of not being reviewed or updated, tracking version control, accessible archival functionality, and recommendations to move away from paper form to electronic documentation that is easy to access.

3 Current-State Overview & Analysis

3.1 Current System Information Technology Analysis

The current system is mostly paper-based, although some people use GoogleDocs or SharePoint as well. Documents that require signatures from specific people are passed along until completed and these signatures are triggered through email. Currently, the curriculum development process in the iSchool has recently made changes in the way current and future classes are tracked; all class history is currently viewable by iSchool staff and faculty via Sharepoint. When people want changes, sometimes the document has to be retyped and then resent through the approval cycle. If the curriculum changes are for the graduate school, there is no real process in place.

3.2 As-Is Use Cases

Use Case 1: Access Archived Data

Primary Actor: Curriculum Specialist
Level: Kite (summary)
Stakeholders: iSchool
Precondition: The curriculum specialist logged the data earlier.
Minimal Guarantee: Either find the data or find out that it doesn't exist in the archives.
Success Guarantees: Gets the data from archives.
Trigger: Receives proposal and wants to check if something similar/related has been submitted before.
Main Success Scenario:

1. Curriculum specialist accesses the data
2. Or finds out it's not in the system.

Extensions:

1a. System crashes or is slow responding to requests.
1b. Only the Curriculum Specialist can access the archives so others can't see the data.
2a. System makes it look like data is not there but it actually is.

Use Case 2: Track Pending Curriculum Documents Through Change Process

Primary Actor: Curriculum Specialist
Level: Kite (summary)
Stakeholders: iSchool, Departments that changes affect
Precondition: Curriculum change proposal must be submitted.
Minimal Guarantee: Receive curriculum change form
Success Guarantees: Review curriculum change and decide on approval
Trigger: Faculty, program committee or upward management submit a curriculum change and it gets initially approved.
Main Success Scenario:

1. Documents get approved.
2. Documents don't get held up during transition phases.
3. Curriculum gets updated successfully.

Extensions:

1a. Document gets denied and has to go back through the cycle.
2a. Document misses one of the few meetings they have per quarter.

2a1. Someone loses an email and doesn't get the trigger to review the document.

3a. There is a hold up with the University Curriculum Committee.

Use Case 3: Review Curriculum Changes

Primary Actor(s): Program committees, Academics Council, Faculty
Level: Kite (summary)
Stakeholders: iSchool
Precondition: Proposed curriculum change approved curriculum specialist.
Minimal Guarantee: Receive proposed curriculum change.
Success Guarantees: Review curriculum change and decide on approval
Trigger: Faculty, program committee or upward management submit a curriculum change and it gets initially approved.
Main Success Scenario:

1. Documents get approved.
2. Documents don't get held up during transition phases.
3. Curriculum gets updated successfully.

Extensions:

1a. Document gets denied and has to go back through the cycle.

2a. Document misses one of the few meetings they have per quarter.

2a1. Someone loses an email and doesn't get the trigger to review the document.

3a. There is a hold up with the University Curriculum Committee.

Use Case 4: Revise Curriculum Documents

Primary Actor(s): Program committees, Academics Council, Faculty, Curriculum Specialist
Level: Kite (summary)
Stakeholders: iSchool, Departments that changes affect
Precondition: Proposed curriculum change approved curriculum specialist.
Minimal Guarantee: Changes that a committee or faculty doesn't approve of does not go further in the process.
Success Guarantees: All the committees and faculty get all the revisions they want with the curriculum and are happy with the change.
Trigger: (At least) one of the review committees does not approve of part or all of the proposed changes.
Main Success Scenario:

1. Revisions are minor.
2. Revisions quickly get approved by other committees and faculty.
3. Curriculum change doesn't need to be revised at all.

Extensions:

1a. Revision is major.

2a. There is hold up with committees over the revision.

2a1. A different committee or faculty wants to revise the revision.

3a. The committee or faculty wants to terminate the change.

Use Case 5: Record Changes (or Denial of Changes) in Sharepoint

Primary Actor(s): Curriculum Specialist
Level: Kite (summary)
Stakeholders: iSchool
Precondition: Proposed curriculum change approved by all committees and faculty.

Minimal Guarantee: Approved curriculum change put into system to be approved by UW
Success Guarantees: Approved curriculum change placed in system and archived for future curriculum.
Trigger: Proposed curriculum change is approved by all relevant committees and faculty and is received by curriculum specialist.
Main Success Scenario:

1. Documents get approved.
2. Curriculum Specialist receives approved curriculum change.
3. Curriculum change sent to UW curriculum committee.
4. UW curriculum committee approves curriculum change
5. Curriculum gets updated successfully.

Extensions:

1a. Document gets denied and has to go back through the cycle.
2a. Document misses one of the few meetings they have per quarter.
    2a1. Someone loses an email and doesn't get the trigger to review the document.
3a. There is a hold up with the University Curriculum Committee.

Use Case 6: Deliver Final Curriculum Change Forms to UW Curriculum Committee

Primary Actor(s): Curriculum Specialist
Level: Kite (summary)
Stakeholders: iSchool, UW Curriculum Committee
Precondition: approved curriculum change received by Curriculum Specialist
Minimal Guarantee: Approved curriculum change form received by UW Curriculum Committee.
Success Guarantees: UW Curriculum Committee approves curriculum change
Trigger: Proposed curriculum change is approved by all relevant committees and faculty and is received and delivered by curriculum specialist.
Main Success Scenario:

1. Document received by UW Curriculum Committee
2. UW Curriculum Committee approves curriculum changes
3. UW Curriculum Committee rejects changes.

Use Case 7: Vote on Curriculum Changes

Primary Actor(s): Curriculum Specialist, Faculty, Academic Counsel, Program Committee
Level: Kite (summary)
Stakeholders: iSchool, Departments that changes affect
Precondition: Proposed curriculum change approved by all committees and faculty.
Minimal Guarantee: There is some sort of an agreement whether it is for passing/failing
Success Guarantees: The vote passes
Trigger: Email sent to involved parties
Main Success Scenario:

1. A vote is called in order through email
2. Faculty, Academic Counsel, and Program Committee pass the vote

Extensions:

1a. The vote fails to pass

3.3 As-Is Process Flow

The current process begins with a proposal form submission for curriculum change, addition, or removal to Gary, the Curriculum Specialist. The Curriculum Specialist then determines if the proposal is for a graduate or undergraduate class - each has a separate approval process. The process for graduate curriculum changes is significantly simpler. Currently, there is no set process. As-is, the proposed changes are submitted as a memo to the MSIM and MLIS committees for review before being sent to UWPC for final approval. Once approved, the memo is forwarded to the Registrar for updating and then a notification sent to the Curriculum Specialist for log keeping.

The process for undergraduate curriculum change is a lot more formal. Specific forms travel through increasing levels of approval with the iSchool Committee and Academic Counsel. Once approved by these committees, the proposed changes are then put to a formal vote amongst faculty members. Upon clearing that, the form is then forwarded to the iSchool Undergraduate Committee and subsequently the Registrar for updating. The Curriculum Specialist is then notified and makes updates for log keeping.

Diagram is in Appendix Figure 2.

3.4 List Analysis of Current IT, People, & Process Issues

1. Process is currently paper-based. This causes inefficiencies and delays the delivery of documents to the various committees. For example, one physical form must move to and from each committee to get signed off. Additionally, there is the risk of losing the physical document.
2. Risk of human error is high with a paper-based process.
3. There is a lack of version tracking within the process and making edits to a document causes inconsistencies
4. Students are not currently involved in the process.
5. Only one person understands the process.
6. The department would rather to use paper-based process since the training takes a long time.
7. SharePoint can not be accessed by different users currently, which makes tracking a big issue.

3.5 List of Current-State Risk Assessment

1. Currently, some faculty members are unwilling to switch from a paper-based system and papers can get lost. There are varying levels of commitment to the current system. These individuals could pose as threats to the new system if they are actively opposed to the the implementation of the new system and process.

2. Email triggers are required to initiate either a course or curriculum change. It requires sending an email to Gary, which introduces the risk of the email being lost among the others or going into the junk folder or missed by the recipient. Using emails as triggers can lead to miscommunication and delays.

3. There can be delays with how few meetings take place per quarter for voting. The approvals have to happen in a particular order, but since only a few meetings happen in the quarter, some committees have to wait until the following quarter to do their voting.
4. Currently, there is a lack of version control within the system. This could lead to committees voting on out of date forms and inconsistent form reviews. Additionally, this could cause editing inconsistencies as edits could be made outdated versions at the different stages of the review process.
5. The current system is very dependent on the curriculum specialist as only they understand the current system in its entirety. This poses a significant risk and could lead to major setbacks should the curriculum specialist leave.

4 Future State Analysis

4.1 Future State Overview

The system we are creating will be developed on the existing SharePoint platform, taking advantage of the client's familiarity of the environment. What we want to do is to leverage the power of SharePoint as a collaboration tool and make greater use of features by integrating comprehensive workflows with other Microsoft tools that will greatly increase transparency, accessibility, and efficiency of processes.

Using Microsoft InfoPath, we will develop a set of online forms that will be hosted on SharePoint and accessible to iSchool faculty and staff. When a form gets submitted to a dedicated "active proposals" document library, it triggers a workflow that will automate email notification to relevant committees and individuals to request approval. Throughout the process, the approval status of the proposal can be tracked on a dashboard on SharePoint. At any point, if a committee denies approval and requests changes to the proposal, the workflow will then trigger a different set of email notifications to convey the message. In addition, the workflow will store the current version of the proposal in a separate library, it offers improvements and fulfills all of our client's needs.

4.2 Functional Design Specification

- Members involved in the curriculum changing process will use Sharepoint's collaborative document editing tools to make additions/edits to the formal curriculum, thereby speeding up workflow and mitigating repetitive changes to formal curriculum documentation.
- A workflow will be implemented inside Sharepoint in which all members of the curriculum editing process will be notified of additions or edits to documents. This will be done to lessen the wait time between approving changes/additions to the curriculum.
- Additional workflow features will be added to Sharepoint to notify iSchool faculty and staff when a curriculum has not been updated in five years.
- Documentation is created or updated of when every documented uploaded is edited/added/approved/rejected by time and date.
- Report tracking is made available so that users of the Sharepoint system can pull all information of current and past classes. Can also pull data according to time and date into an XML file.
- Store and sort curriculum files by their level of approval.

4.3 Requirements Listing

- Ability for anyone to track versions of proposed changes efficiently.
- Have greater accessibility to forms, form status, proposals to all relevant parties.
- Have an efficient way of storing historical records.
- Make it easy for program chairs to track all current curriculum at the iSchool.
- Facilitate the approval process of curriculum changes.
- Provide simple documentation for maintenance and use of the system.

- Chaser email reminders to reduce the risk of missing trigger delays.
- Ability to pull tracking reports of updates.
- Provide tracking when curriculum reaches a certain age without reviews or updates.

4.4 To-Be Use Cases

Use Case 1: Access Archived Data

Primary Actor: Curriculum Specialist, Program Committee, Academic Council, Faculty
Level: Kite (summary)
Stakeholders: iSchool
Precondition: submit online form for curriculum change (SharePoint automatic archive)
Minimal Guarantee: Either find the data or find out that it doesn't exist in the archives.
Success Guarantees: Gets the data from archives.
Trigger: Receives proposal and wants to see if something similar/related has been submitted before.
Main Success Scenario:

1. Any involved parties access the archived data

Extensions:

1a. System crashes or is slow responding to requests.
2a. Proper permissions were not set
3a. System makes it look like data is not there but it actually is.

Use Case 2: Monitor the Curriculum Change Process

Primary Actor: Curriculum Specialist
Level: Kite (summary)
Stakeholders: iSchool
Precondition: Proposed curriculum change form submitted through SharePoint.
Minimal Guarantee: Curriculum Specialist views submitted curriculum change form in SharePoint.
Success Guarantees: Curriculum Specialist oversees document throughout review process and sends it to UW.
Trigger: Curriculum change form is submitted to SharePoint.
Main Success Scenario:

1. Curriculum specialist views curriculum change form
2. Curriculum specialist tracks versions through review process
3. Once curriculum change is approved, Curriculum Specialist sends form to UW

Extensions:

1a. SharePoint crashes and change form is not uploaded to SharePoint

Use Case 3: Revise and Make Curriculum Document Changes

Primary Actor: Program Committee, Academic Council, Faculty
Level: Kite (summary)
Stakeholders: iSchool
Precondition: submit online form for curriculum change
Minimal Guarantee: no changes are made
Success Guarantees: Revisions are made and saved
Trigger: UW sends back curriculum change form for revisions
Main Success Scenario:

1. Revisions are made on SharePoint

2. The revisions are saved and accessible by others

Extensions:

1a. System crashes or is slow responding to requests.

2a. Human error while making revisions to the document

Use Case 4: Deliver Final Form to UW Curriculum Committee

Primary Actor(s): Curriculum Specialist
Level: Kite (summary)
Stakeholders: iSchool, UW Curriculum Committee
Precondition: approved curriculum change received by Curriculum Specialist
Minimal Guarantee: Approved curriculum change form received by UW Curriculum Committee.
Success Guarantees: UW Curriculum Committee approves curriculum change
Trigger: Proposed curriculum change is approved by all relevant committees and faculty and is received and delivered by curriculum specialist.
Main Success Scenario:

1. Document received by UW Curriculum Committee
2. UW Curriculum Committee approves curriculum changes

Extensions:

1a. UW Curriculum Committee rejects changes.

Use Case 5: Approval Proposals/Vote on Changes

Primary Actor(s): Faculty, Academic Counsel, Program Committee
Level: Kite (summary)
Stakeholders: iSchool, Departments that changes affect
Precondition: Proposed curriculum change approved by all committees and faculty.
Minimal Guarantee: There is some sort of an agreement whether it is for passing/failing
Success Guarantees: The vote passes
Trigger: The committees finish reviewing the proposals / email alert to remind all parties of the upcoming meeting(s)
Main Success Scenario:

1. A vote is called in order through email
2. Faculty, Academic Counsel, and Program Committee pass the vote

Extensions:

1a. The vote fails to pass

Use Case 6: Submit Online Form for Curriculum Change/Archive & Versioning

Primary Actor(s): Faculty, Academic Counsel, Program Committee
Level: Kite (summary)
Stakeholders: iSchool
Precondition: Online curriculum change form is accessed by faculty, academic council or program committee.
Minimal Guarantee: Electronic curriculum change form is completed
Success Guarantees: completed curriculum change form submitted to SharePoint to be archived and reviewed.
Trigger: Faculty, Academic Council or Program Committee have request for curriculum change.
Main Success Scenario:

1. curriculum change form is completed
2. form submitted to SharePoint
3. form viewed by curriculum specialist and various committees for approval

Extensions:

1a. Technical difficulties causing inability to access and complete curriculum change form
2a. SharePoint crashes, unable to submit completed form to SharePoint
3a. Difficulties with SharePoint or SharePoint crashes and form is cannot be viewed by committees for review.

Use Case 7: Review Proposals

Primary Actor(s): Curriculum Specialist, Faculty, Academic Counsel, Program Committee, Program Chairs
Level: Kite (summary)
Stakeholders: iSchool, Departments that changes affect
Precondition: A change proposal was submitted and the workflow on SharePoint started.
Minimal Guarantee: All the departments and committees get to see the change request form.
Success Guarantees: They all come to an agreement on either approving or denying the changes without any huge delays.
Trigger: Email through the workflow on SharePoint
Main Success Scenario:

1. Everyone receives the email trigger in a timely fashion.
2. Everyone access the document on SharePoint with no difficulties.

Extensions:

1a. Someone misses the email trigger.
2a. There are issues with SharePoint either with the system itself having technical difficulties or training wasn't sufficient enough and there are user difficulties.

4.5 To-Be Process Flow

The current process begins with a proposal form submission for curriculum change, addition, or removal to Gary, the Curriculum Specialist. The Curriculum Specialist then determines if the proposal is for a graduate or undergraduate class - each has a separate approval process. The process for graduate curriculum changes is significantly simpler. Currently, there is no set process. As-is, the proposed changes are submitted as a memo to the MSIM and MLIS committees for review before being sent to UWPC for final approval. Once approved, the memo is forwarded to the Registrar for updating and then a notification sent to the Curriculum Specialist for log keeping.

The process for undergraduate curriculum change is a lot more formal. Specific forms travel through increasing levels of approval with the iSchool Committee and Academic Counsel. Once approved by these committees, the proposed changes are then put to a formal vote amongst faculty members. Upon clearing that, the form is then forwarded to the iSchool Undergraduate Committee and subsequently the Registrar for updating. The Curriculum Specialist is then notified and makes updates for log keeping.

Diagram is in Appendix Figure 4.

4.6 Recommendations and Alternatives

We plan on leveraging the existing familiarity of SharePoint and create in--browser versions of the relevant forms and create comprehensive workflows that will manage these forms when they get submitted to specific document libraries in SharePoint. This workflow will work dynamically to notify relevant parties that there is a form requiring their attention. The workflow will systematically progress through the various levels of approvals required for each specific form. A document library dashboard will allow management to track the status of the form at any point in time and once finally approved/disapproved, the electronic form can be transferred to a separate document folder for historical data.

An entire standalone form management system dedicated to tracking and storing forms that are relevant to the iSchool curriculum department. This system would be separate from any existing system the iSchool currently uses.

4.7 Future State Risk Assessment

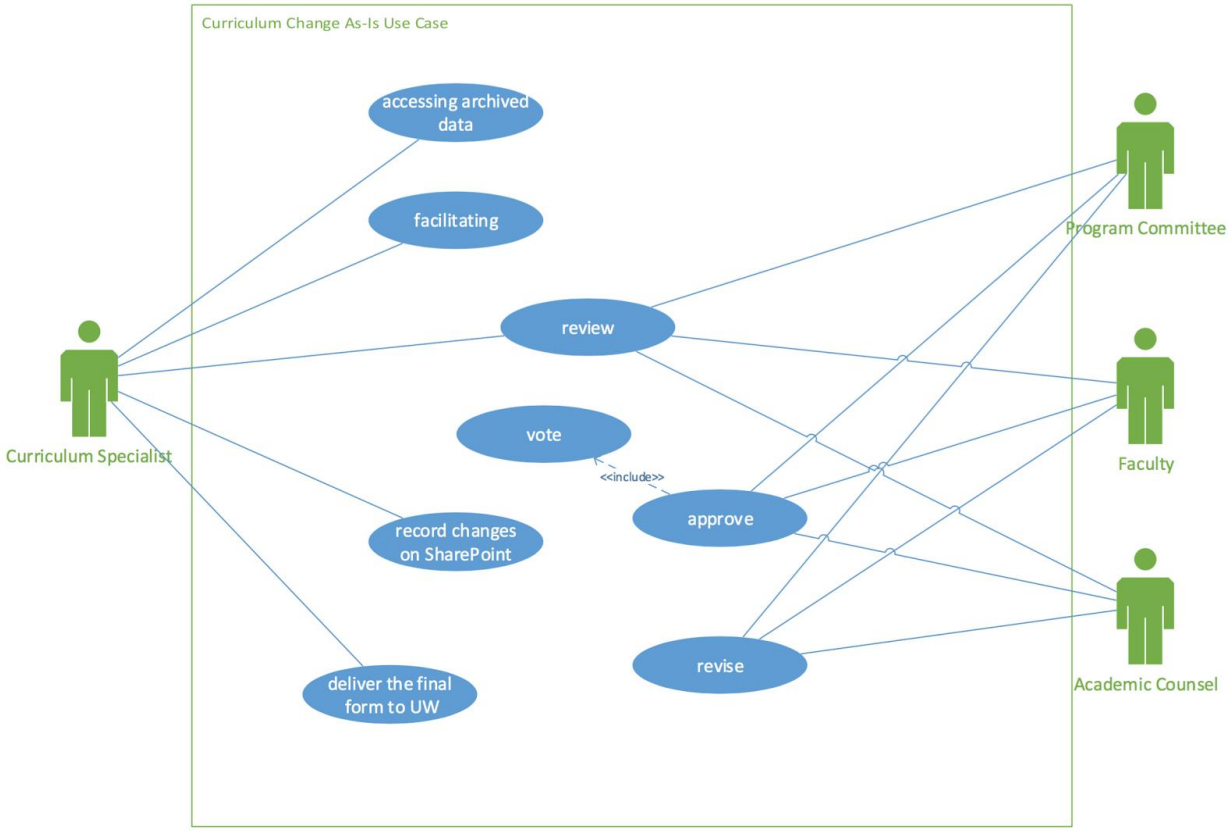
- Even with the current system, some faculty members are unwilling to switch from their paper--based system which could lead to difficulty with training or compliance in accepting the new system.
- Potential partnership with Microsoft getting terminated thus causing SharePoint to not be free anymore and potentially being out of the scope budget. This would cause problems as the entire system relies on SharePoint.
- If SharePoint goes down for any reason, the whole system will be down and there wouldn't be a way in-house to deal with the system going down.
- Cloud based system could have security issues or at least people who we need to adopt the system might have issues with it and might not be compliant to accept the new system.
- There is a risk of delay because involved members may ignore/forget about their emails. We will try to mitigate this by having SharePoint send chase emails every several days to remind them.

5 Summary & Conclusion

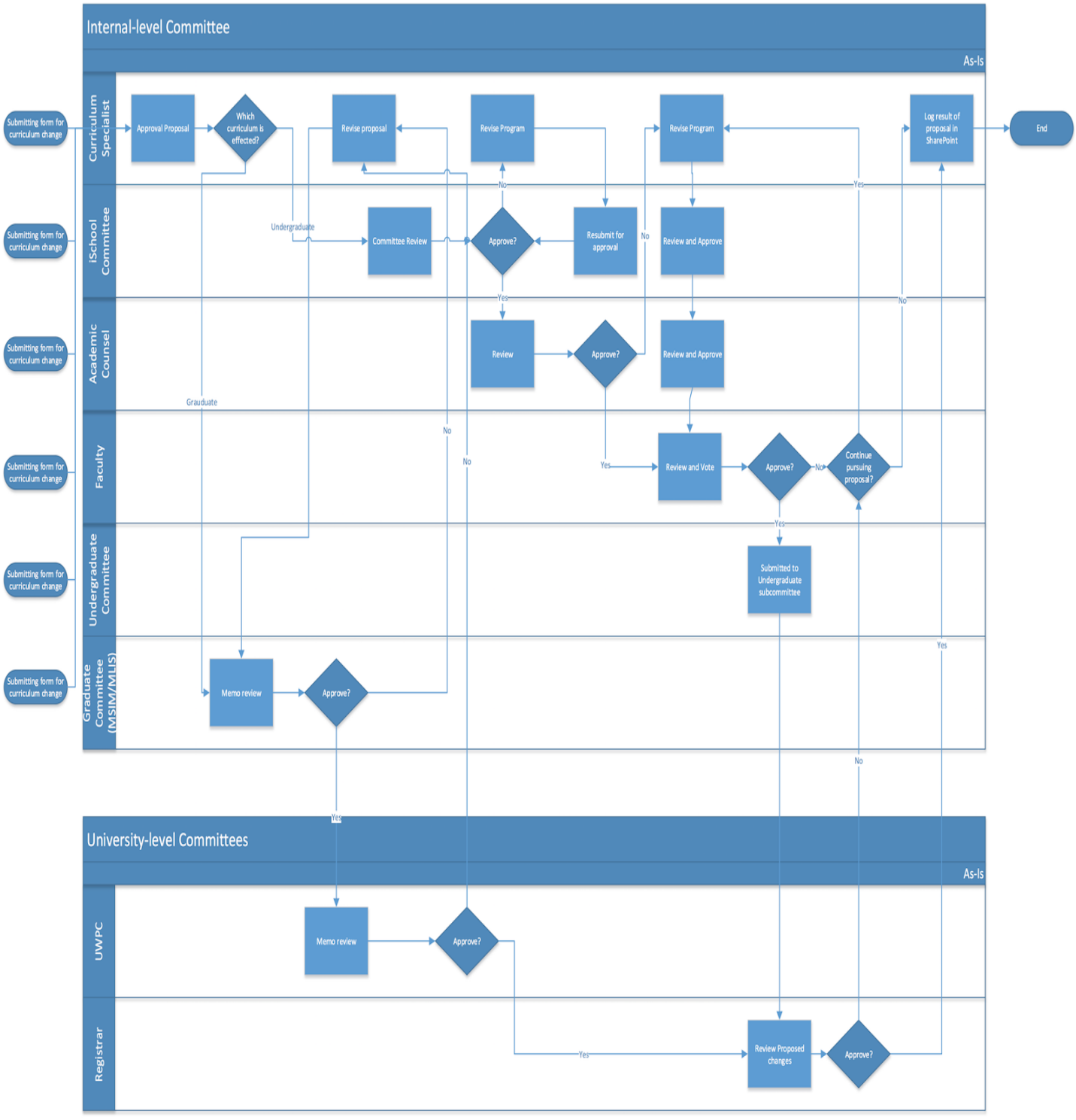
In conclusion, we plan to move away from the current paper--based process and the inefficiencies associated with it and towards utilizing electronic forms and SharePoint. This will create a dynamic workflow that improves document tracking and version control as the document moves to various committees awaiting approval by notifying relevant parties when they need to view a document. This would also eliminate the inconsistency issue of the existing paper--based process. Lastly, the use of electronic forms will allow for archiving as they can be moved to a separate database.

6 Appendix

6.1 Figure 1. As-Is Use Case Diagram



6.2 FIGURE 2. AS-IS PROCESS FLOW DIAGRAM



6.3 FIGURE 3. FUTURE-STATE USE CASE DIAGRAM

6.4 FIGURE 4. FUTURE STATE PROCESS FLOW DIAGRAM