POS SYSTEM – PROJECT PLAN



HIT Team

Consulting

Sales

Staffing

Support

# Information of document

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| **Team name** | HIT Team |
| **Team members** | Thanh Giang, Hiep Ta, Phuc Nguyen, Giang Nguyen, Dat Tran, Huy Huynh |
| **Project mentors** | Ms. Huong Nguyen, Mr. Huyen Pham |
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1. **Acronyms**

|  |  |
| --- | --- |
| Acronym | Definition |
| API | Application Programming Interface |
| CCB | Configuration Control Board |
| CM | Configuration Management |
| CMU | Carnegie Mellon University |
| DB | Database |
| EOSP | End of Semester Presentation |
| LOC | Line of Code |
| OS | Operating System |
| PSP | Personal Software Process |
| QA | Quality Assurance |
| SPMP | Software Project Management Plan |
| SRE | Software Risk Evaluation |
| SRS | Software Requirements Specification |
| TSP | Team Software Process for Education |

1. **Overview**

This section of the Software Project Management Plan (SPMP) gives an overview of the purpose, scope, and objectives of the project. It also contains the assumptions and constraints, the project deliverables, the summary of the schedule and budget, and the plan for changing the SPMP.

2. 1. **Project summary**

Within Retail Industry:

Point of Sale

* is typically the first interaction point with your customer
* is the most mission critical component to any retailer environment delivers the right pricing at the right time and is the largest collector of data for a retailer

Company A, a retail chain, has decided to develop a sales system (hereinafter, the system) in conjunction with its launch of a point service. Company A decided to choose the Web solution using ASP.NET MVC 3 framework, only Web browser, no local Database needed for any POS terminal. And authorized managers can display statistic reports from Internet.

NE POS

* is based on open standards and does not lock a retailer into a single hardware platform.
* offers one-stop-shopping for retailers needing to manage high volume transaction environments.
* supports quick transaction handling enabling retailers to get their customers through the store quickly.
* is an agile, highly configurable, business rules based solution
* integrates the retailer’s store with their Headquarter environment

2. 1. 1. **Scope and objectives**

HIT Team sẽ phát triển phần mềm POS trên nền tảng web-service với các targets sau:

* Quick Checkout: Each cashier will have a bar-code scanners. Products sold at stores have bar codes attached which indicate the product codes.
* Payment Options: Company A offers payment by cash or by using loyalty card point
* Kiểm soát: Products are classified into product types such as food, general merchandise, etc. Not all stores carry every product type, and the range of product types carried is designated for each store.
* Competitive prices, especially on new or unique items: After analyzing sales information, the marketing department launches advertising campaigns to target individual customers based on purchasing history and budget. Because the system is capable of performing the statistical analysis on the sales records of all stores in near real-time manner.
* Update and maintain the inventory file on a routine basis and whenever a change in pricing or availability occurs. Report both regular and sales pricing data.
* Track product popularity and profitability.
* Improve customer throughput with faster service.
* Accelerate inventory turnover by being able to stock the items known to sell quickly.
  + 1. **Assumptions and constraints**
       1. **Assumptions**

The following assumptions will apply for the duration of the POS project:

1. The development team has enough experience as a whole to complete the project.
2. The development team will learn and work together to accomplish the project.
3. Success or failure of the project is based on performance relative to the development process, and not the actual customer deliverables.
4. The customer will respond in a timely manner to all questions and requests for information
5. Team members’ time on the project (including class time) will be limited to approximately 20 hours per week. All learring time must be split between project work and other class activities
6. All team members are supposed to inform any critical situation which can affect to the project. Mentors will be available for support and counseling.
7. Overtime: Each of the store cashiers will receive overtime pay for the training, which will occur in addition to normal work hours.
8. Technical Support and Training:
   1. The Point of Sale vendor will station a technician on-site for the Grand Opening to ensure the equipment runs.
   2. The trainer from the vendor will be available as needed by telephone for six weeks after training is complete. The systems support contract identifies long term support options.
9. Holidays: There are no holidays or other breaks observed during the implementation of this project.
   * + 1. **Constraints**

The following constraints will also apply for the duration of the POS project

1. The program uses
2. Language: English
3. Techniques: programming by C# language
4. Due date: POS implementation is scheduled to be completed by 20th June

Business Constrains: Points can be used in all stores.

Technical Constrains:

1. The head office server and the POS terminals are connected to each other via a network
2. System will use SQL Server Database.
   * 1. **Project Deliverables**

HIT Group provides software and related documentation software for Honda Motorcycle Shop after December 16, 2011.

**Project plan**

The document should describe project goals and strategy, how our team is organized (or the roles of the team members), effort estimates, key risks and mitigation strategies, deliverables, and time lines providing key milestones.

**Architecture drivers document**

Team will use the product description provided in this document as a basis to create an Architecture drivers document. Opportunities will be provided for teams to interact with the “customer” during this course sessions early in the project through teamwork sessions. The Architecture drivers documentshould include at a minimum the:

* List of functional requirements, quality attributes requirements, business constraints, and technical constraints).
* Key system stakeholders and a description of how each will interact with the system.

**Architecture design document**

## Module View

* + Data model View
  + Decomposition View
  + Use View (option)

## C&C View

## Allocation View

* + Deployment View

## Combined View (option)

## Mapping views (option)

**Draft Report Review**

The purpose of the preliminary report is an opportunity for your team to get direct feedback from the instructors and TAs regarding your progress on the final project. The preliminary report will not be graded – but you must do it or it will negatively impact your grade. The document does not need to be in a completed final format, but the general outline should be in place. At a minimum the preliminary report should include the problem statement, architectural drivers, preliminary utility tree, candidate styles/patterns, and key design decisions and rationale you may have already made. Once we review the preliminary report, we will set up interviews with the teams to provide direct feedback from the instructors and TAs.

**Time Logs**

Each members will keep time logs to track the time they have spent, and where they spent their time on the project. The team will agree together on task categories at the inception of the project. At the conclusion of the project, time data from each member will be rolled up at the end of the project and presented during the final presentation. At a minimum time logs should track the following task categories:

* Planning: Time spent planning the project, meetings, and documentation
* Requirements: Time spent meeting and discussing requirements, analysis and documentation
* Design: Time spent designing the software, meetings, evaluations, and documentation
* Implementation: Time spend developing the software
* Testing: Time spent testing the applications

**The system**

Team will deliver their system applications, source code, databases and installation instructions.

**Product Demonstration**

Team will also provide a final project presentation to the lecturer. The purpose of this presentation is to illustrate how final presentations are done in the project courses by actually creating and delivering a final presentation. The content of the final presentation will include the following:

* Architecture Drivers document
* Architecture Document
* Analysis of Architecture Document
* Implement and demo at least the sales operation
  1. **Evolution of the Plan**

This SPMP is intended to be an evolving document. As the project changes from cycle to cycle, a team member will be responsible for updating the SPMP. This document is to be revisited at the beginning of each cycle. These cycle dates are approximately **thirteen** weeks in duration and will be documented in the HIT project plan. The team leader is responsible for the revisions to the project plan, although responsibility for some sections may be delegated to other members of the team.

1. **Project Organization**

This section of the SPMP identifies the external entities structure to the project and their interaction with the project team and gives a brief description of each of the roles held by the team members, as well as internal project structure and roles and responsibilities for the project.

1. 1. **External interfaces**

The team will meet weekly with the client (is also the lecturer) to report progress and discuss changes and progress possible and discuss possible changes and amendments. Major changes will affect the important events or major changes will affect important events must be approved by the whole team. From these documents it will be important issues are all members agree.

* 1. **Internal structure**

The basic HIT Team Structure is given in Figure 1. All members have specified areas of responsibility and everybody contributes equally to the project. The process manager is also responsible for the support manager role. The structure in Figure 1 shows the roles assigned to the remaining six members: **Project Leader, Requirement Engineer, Architect Manager, Developer, Tester, Recorder, Planning Manager, and Support Manager.**

All team members may provide input to all decisions that the team makes; however, greater weight will be given to the recommendations of the appropriate manager. If there is a problem, issues will be resolved within the team and all members will approve the final decision. The team members will change roles throughout the life of the project, and each member may continue to have more than one role.

**Figure 1 – HIT Team Structure**

* 1. **Roles and responsibilities**

Development tasks are divided among all six HIT team members, and project management tasks are allocated according to the Waterfall Model role held by each person during the process. Project responsibilities specific to TSP manager roles are listed in Table 4. Slight modifications have been made to the role responsibilities in order to include the studio responsibilities and to tailor the roles to the size of the team.

| **TSP Role** | | **Responsibilities** |
| --- | --- | --- |
| Team Lead | | * Motivate the team to perform tasks and resolve issues * Track status of committed assignments * Check that team members have submitted the required project data * Press late team members to promptly submit the required work * Lead the team in allocating tasks to individuals * Act as facilitator in all team meetings * Report team progress and issues to mentors * Handle personnel issues * Maintain process discipline * Focus on product quality |
| Planning Manager | | * Lead the team in producing the task plan for the current cycle * Lead the team in producing the balanced team development plan * Track the team’s progress against the plan * Consolidates the individual plans into the team plan |
| Development Manager | * Lead the team in producing the development strategy * Lead the team in producing the high-level design * Lead the team in producing the software design specification * Lead the team in implementing the product * Lead the team in developing the build, integration, and system test plans * Lead the team in developing the test materials and running the tests * Lead the team in producing the product’s user documentation | |
| Support Manager | * Lead the team in determining its support needs * Obtain the needed tools and facilities * Maintain the project notebook and HIT on SVN * Manage the configuration management system * Leads the change control board * Acts as the team reuse advocate | |
| Quality Manager | * Leads the team in establishing quality goals and standards * Assesses individual and team quality data * Identifies and helps resolve quality problems * Moderates team inspections or obtains a qualified moderator | |

**Table 4 - Roles and Responsibilities**

|  |  |
| --- | --- |
| **Members** | **Role** |
| GIANG THỊ HÀ THANH | Team Leader |
| NGUYỄN VŨ TRỌNG GIANG |  |
|  |  |
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* 1. **Team Goals**

Goal setting is an essential step in team formation and should usually be done at the start of every project.

The primary objective of most projects is to attain superior performance, something that is most likely when team strive to meet challenging goals. Our team goal is aggressive but realistic, and we strive to meet them. HIT Team could be evaluated on their willingness to set measurable and aggressive goals and on the efforts to meet them. Our initial goals may aim at the wrong items or may be wildly unrealistic. With a little goal-setting experience, we will begin to see how to set aggressive but realistic goals.

For my team, there are some basic goals:

|  |  |
| --- | --- |
| **Team Goal 1**  Measure 1.1  Measure 1.2  Measure 1.3 | **Produce a quality product**  Percent of defects found before the first compile: 80%  Number of defects found in system test: 20%  Requirements fuctions included at project completion: 100%  Metrics: Set n is LOC / function, d is defect  Rate: **So we have (D/n)\*100%** |
| **Team Goal 2**  Measure 2.1  Measure 2.2  Measure 2.3 | **Run a productive and well-managed project.**  Error in estimated product size: <20%  Error in estimated development hours: <20%  Percent of data recorded and entered in project notebook: 100%  Metrics: Set a are metrics which have been estimate before the project, b are metrics which we have after the project.  Rate: **So we have (b/a) \* 100%** |
| **Team Goal 3**  Measure 3.1 | **Finish on time.**  Days early or late in completing the development cycle: <4  Metrics: Set a is Real Days, b is Plan days  Rate: **So we have a - b** |
| **Team Goal 4** | **Adopt valuable practices as many as possible** |
| Measure 4.1 | Have a effective team |
| Measure 4.2  Measure 4.3 | Be more confident  Learn skills from working on the project: increase communication skill in team ship, controlling skill, estimating skill…  Metrics: Set a is team member’s skill before the the project started, b is team member’s skill after the project ended  Rate: **So we have a compare with b**  Metrics: Or Set a1 is number of steps before the the project started while working a task, a2 is number of steps after the project ended while working the same task  Rate: **We have a1/ a2 \* 100%** |
| **Team Goal 5** | **Can track with the plan: schedule, tasks** |
| **Team Goal 6**  Measure 6.1  Measure 6.2  Measure 6.3 | **Learning by doing**  Can apply TSP in other project  Increase coding skill  Know how to send SMS automatically by GSM or Nokia mobile phone method |
| **Team Goal 7**  Measure 7.1 | **Master TSP**  Can Follow TSP Launch Process  Get TSP Training  Use TSP Notebook |

These goals may seem obvious, and they are very general. The principal challenge of goal setting is to make the goals measurable. So the second goal-setting step is to define measurements for the goals. The best way to do this is to measure team’s performance and set goals to improve.

* 1. **Team members’ Goals**

All team members need specific and measurable goals. The TSPi defines goals for the team and for each team member. For the first cycle, use the standard TSPi team member and role goals.

For the second and subsequent cycles, team member can change these goals if they wish. In changing the goals, use the following ground rules.

* If members did not meet the prior-cycle goals and if they still appear reasonable, use them again.
* If the goals now look unrealistic, set some new and somewhat less challenging goals, but make sure they call for significant improvement over member’s prior performance.
* If member met the prior-cycle goals, set aggressive improvement goals for the next cycle.

|  |  |
| --- | --- |
| **Team Member Goal 1**  Measure 1.1 | **Be a cooperative and effective team member.**  Average PEER evaluation of role for helpfulness and support: >3  Metrics: Set a is number of Team Members has role helpfulness and support  Rate: a compare with number of team members |
| Measure 1.2 | Average PEER evaluation of role for overall contribution: >3  Metrics: Set a is number of Team Members has role for overall contribution  Rate: a compare with number of team members |
| **Team Member Goal 2**  Measure 2.1  Measure 2.2 | **Do consistently disciplined personal work.**  Percentage of personal data recorded and in project notebook: 100%  Percentage of weeks a personal form WEEK was completed: 100%  Metrics: Set a is number of personal data recorded and in project notebook  Rate: a / total number of personal data \* 100%  Metrics: Set a is number of weeks a personal form WEEK was completed  Rate: a / total number of personal form WEEK \* 100% |
| **Team Member Goal 3**  Measure 3.1 | **Plan and track all your personal work.**  Percent of project tasks with completed plan and actual data on TASK form: 100%  Metrics: Set a is number of project tasks with completed plan and actual data on TASK form  Rate: a / project tasks \* 100% |
| **Team Member Goal 4** | **Finish on time not affect to team member’s health** |
| **Team Member Goal 5**  Measure 5.1 | **Have CMU degree**  Avg. Mark >7.0 |

1. **Managerial process plans**

This section contains the management objectives and priorities; the start-up plan with staffing and resource acquisition plan; the control plan for requirements, schedule control, reporting, and metrics collection; the risk management plan; the monitoring and controlling strategies; and the close out plan.

4. 1. **Management Objectives**

The primary objective of the HIT management is to ensure the successful completion of the project. To be considered successful, the team must:

* Be conducted in a manner that the team goals are considered and achieved whenever possible.
* Understand Nokia Tool for Developer
* Develop the SMS architecture which satisfies the needs of the client outlined in the SRS
* Develop a technical note and documentation for the developer and the end user

The team’s overall objective is to deliver a quality product to the client on time. In order to achieve this objective, the team has the following goals and priorities:

1. Use good software engineering methods to develop our product.

* Apply the methods learned in classes: Develop a project plan using a work break-down structure.
* Experience a new way of doing things.
* Practice reflective learning.

1. Deliver a quality product that meets the client expectation.

* Deliver a product that is stable and relatively defect-free.
* Deliver a system that addresses the client’s needs.

1. Honor our commitments.

* Meet mentor and team deadlines.
* Avoid unrealistic commitments.

1. Conduct ourselves as professionals.

* Value the time of team members, mentors, and the client.
* Accept and support team decisions.
* Communicate openly and frequently.
* Take responsibility for the success of the project.
* Be proactive.

1. Make efficient user of the resources available to us.

* Learn from each other.
* Experiment with existing tools and processes.

1. Use earns value calculations to monitor progress and track this progress against the team’s plan.
2. Develop a risk management plan to mitigate risks.
3. Develop a tracking mechanism to monitor risks.
4. Track action items to ensure that all issues and outstanding matters are addressed.
   1. **Start-up plan**

Jobs for each week will be divided into short term phase based on the delivery of the project artifacts and counted as milestones. Each phase will cover part of the Work Breakdown Structure that was created at the beginning of the project through TSP Launch.

At the beginning of each phase, HIT will have TSP Launch to define the tasks and the schedule. HIT will assess its status once a week and update and distribute the schedule accordingly. Every artifact will be reviewed by using formal review methods including walkthrough and inspection at the end of each phase.

Each team member must fill the every field in the report which team has agreed and upload the file into the main server by every Saturday. The planning manager will consolidate each file and make a status report. The team lead and the planning manager will assess the effect of the delay, take corrective actions, and update schedule as necessary. The status report and rearranged schedule must be informed at weekly status meeting. HIT will notify the client and mentors of any change affecting the due dates of deliverables.

* + 1. **Staffing plan**

Each team member will be available for 20 hours per week. This time includes time spent with the mentors and time spent working on class and such as team and team meetings, document preparation and inspection, and tool development.

* + 1. **Resource acquisition plan**

All resources for the project will be available at the start of the project and will not change substantially over time. Below are the planned changes:

* The team member’s roles will change each cycle

Many resources are provided for team, such as the GSM of Mr. Hung.

* + 1. **Project staff training plan**

Most of the training for the project will come from the SPM program courses, which include training about the TSP process. Since the team members are not familiar with GSM or Nokia Tool, much of the first cycle will be devoted to understanding it and learning how to use it. To help all team members understand the requirements of the project training will also include individual readings.

HIT staff training plan includes the following guidelines:

* Team members have strengths and weaknesses with various technical and management skills; therefore, cross training will be a major instrument and principle of HIT during the project.

|  |  |
| --- | --- |
| Name | Training |
| Giang Vu | Using GSM or Nokia Tool |
| Nha Thai | Using GSM or Nokia Tool |
| Luan Nguyen | Using GSM or Nokia Tool |
| Thanh Giang | Programming skill |
| Ha Tran | Programming skill |

**Training schedule and Instructor**

* 1. **Control plan**

This section specifics the required metrics, reporting frequency, and control systems to be used on the project.

At the beginning of each phase, HIT will have TSP Launch to define the tasks and the schedule. HIT will assess its status once a week and update and distribute the schedule accordingly. Every artifact will be reviewed by using formal review methods including walkthrough and inspection at the end of each phase.

* Will create the schedule together using Microsoft Project. Each team member must fill the every field in the tool and upload the file into the main server by every Monday. The planning manager will consolidate each file and make a status report. The team lead and the planning manager will assess the effect of the delay, take corrective actions, and update schedule as necessary. The status report and rearranged schedule must be informed at weekly status meeting.
* Will notify the mentors of any change affecting the due dates of deliverables.
  + 1. **Requirements control plan**

All requirements for the HIT project will be documented in the SRS. After the SRS is formally released, all changes will be documented and approved via the guidelines established in the CM Plan, which will be developed at a later date.

* + 1. **Schedule control plan**

The HIT planning manager will maintain the schedule in a master project. The planning manager will be responsible for gathering the individual tasks for each team member and generating the plan for each cycle at the start of the cycle, which will include reasonable milestones based on the goals of each cycle. Each team member will record all time spent working on the project by upping on SVN to the team leader by the deadline each week. This time will be recorded by the team leader. When the team goes more than two weeks without correcting any delays introduced into the schedule, members will either re-plan or take other corrective actions to ensure the team both has a reasonable schedule and follows that schedule. During each team meeting, the team meeting facilitator will go over the open action items and the support manager will modify or add to the action items database accordingly. Each team member is responsible for informing the planning manager of the updated schedule and status.

All meeting agendas and minutes will be recorded naming Meeting Minus document and will be available on the SVN team. The open action items will also be maintained on the SVN. When there are open action items, they will be reviewed during the team meetings and the client meetings accordingly and then updated online.

* + 1. **Reporting plan**

Internal reporting for the HIT team will be relatively informal. Team members will submit individual Report Tool to the planning manager on every Saturday. The planning manager will consolidate all files and make one status report and use this information to compile a team status report for discussion at the team’s weekly meeting. Mentors are invited to attend the weekly status meeting for general status issues. For mentor who cannot attend in meeting, meeting will be recorded and recording file will be sent. Additionally, each team member will have a regularly scheduled one-on-one meeting with the team mentors to discuss any issues in greater detail. At the regular team lead meetings, HIT’s lead will report to the studio manager regarding the team project’s current progress, unresolved issues, and need for assistance.

External reporting will be more formal. At the end of semester, the team will give a presentation.

* + 1. **Budget Allocation**

This project has no plan on budget.

* + 1. **Metrics collection plan**

Each team member will submit individual reports on every Saturday about the developer’s individual progress and productivity. Each team member will report on tasks assigned, tasks done or not done, problems, hours planned, actual hours, and future plans at every weekly status meeting. The planning manager will consolidate the data and will analyze the efforts spent per developer every week.

* 1. **Risk management plan**

The team lead will generate a separate Risk Management Plan document.

Risks will be identified at the beginning of each phase and the team lead will assemble them into a prioritized risks list. That list will be published on the team’s project management website. During the weekly status meeting, the team members will raise risks and reassess the prioritized risks and if necessary, revise the list. HIT will use “Risk Statement.” Team members will determine mitigation plans for all identified risks and tasks that need to be completed and then these risks and tasks will be assigned as action items. The team will monitor high priority risks every week. All risks will be documented by the team.

* 1. **Monitoring and controlling strategies**
     1. **Stragey Criteria**
* Use TSP process which has been developed to deploy more functions of the software.
* The Cycle 1 product provides a base that can be easily enhanced
* The cycle products are all of high quality and can be easily tested
* The product design has a modular structure that permits the team members to work independently
* The HIT team will actively track plans and processes it has established.
  + 1. **Conceptual Design**

The Cycle 1: Develop Function Management Packet on Win form

The Cycle 2: Develop Sending SMS Function Packet using Nokia phone

* + 1. **Weekly team meetings**

Each week, the team leader will facilitate a team meeting to update members on the status of the project and to discuss any new issues. The team meeting will also be an opportunity to brainstorm ideas and provide suggestions and comments. Each team meeting will commence with an update of the open action items so everyone will have an understanding of the status and progress of each action item. Mentors are also invited to attend the meeting. The team meeting will then continue with the objective stated for the meeting. Finally, the team meeting will end with the listing of new action items. If and when there is an open issue with the team, it will be discussed at the weekly team meeting and handled accordingly.

* + 1. **Weekly working meetings**

Each week, the developers of the HIT team will meet to discuss action items. This meeting is designed for each member to ask other team members questions, and at times team members will work together on portions of the project. This working meeting is informal and it is intended to be a learning time for each team member.

* + 1. **Document reviews and inspections**

The HIT team will conduct a document review of all required documents. First, the technical writer will read and edit the document produced by the author. The author will then make the modifications to the document. Next, the mentors and team members will review the revised document at a team meeting. The author will make another revision and send the revised document electronically so team members can provide input. If there are no comments or suggestions, the author will label the document with a new version number and post it on the SVN.

* + 1. **Peer reviews**

At the end of each week, team members will do peer reviews for their fellow team members. These reviews are intended to reflect upon the work of the person in both engineering and TSP management roles. Team members are expected to complete these reviews in a professional manner and to include constructive suggestions for improvement.

* 1. **Closeout plan**

Since this project has a “normal” end associated with the completion of the SPM program, the closeout plan is minimal. At the end of the project, the following actions will occur:

* The HIT team will archive on the HTT (hoctructuyen.vanlanguni.edu.vn) all documents, source code, plans, etc. generated by the team.
* HIT will make a presentation about the team’s progress at the end of each semester. The attending audience will be the mentors, other teams, and any special guests. Team will report on the project’s software development and gather ideas and suggestions from the audience.
* HIT will reflect on its practices and will discuss the positive and negative aspects of the processes used for the project. The team will make notes about process, devices, and mechanisms that might be improved in the future.
* All team members will conduct a project postmortem. The postmortem ensures that the team has completed all of the planned tasks and has recorded all of the required data.

1. **Technical process**

This section covers the process model, tools, and methods that the HIT team will use to develop applications. This section also describes the plan for the software documentation and support functions such as quality assurance, configuration management, and validation.

1. 1. **Process model (cycles 2 and 3)**



**Figure 2 - TSP Process for Each Cycle**

* + 1. **TSP overview**

Before entering any phase, the team will ensure that all the entry criteria for the phase have been fulfilled; similarly, at the end of every phase the completion of the entire exit criteria will be ensured. The team will begin the project by selecting roles for the team members and then setting the goals. Next, the team will proceed to the strategy phase, where the cycles will be defined. In the strategy phase, team members will create a list of strategies for the whole project and tasks to complete during the upcoming cycle. The planning and workload balance phases will follow. All tasks required to implement the allocated requirements will be determined and scheduled during these phases. Tasks from the development and the integration phases will be executed throughout the cycle until the established end date, at which time the postmortem phase will begin. In the postmortem phase, the team will reflect on the previous cycle and generate a report containing all of the lessons learned. The team will also document tasks that were not completed so they can be scheduled in the next cycle, as illustrated in Table 6. A detailed description of the activities in each phase of a TSP cycle can be found in Humphrey’s book.

|  |  |  |
| --- | --- | --- |
| Cycle | Cycle Dates | Cycle Goals |
| 1a  Learning Cycle | Oct. 3, 2011 to November. 18, 2011 | * Perform strategy meeting and planning   meeting   * Firm up cycle 1 goals and activities * Assign activities to team members * Develop estimates for cycle 1 activities * Understand project requirements * Install Nokia Software for Developer * Learn on Programming model   + Understand current limitations.   + Develop simple applications   + Review C codes * Develop educational program   + Create reading list   + Schedule training * Elicit requirements   + Meet with clients * Create semester required documentations   + Create documents     - SPMP [Adrian – lead]     - SRS [Hernam – lead]   + Review documents with My Nguyen |
| 2  Exploration cycle | January 14 2002 to March 8 2002 |  |
| 3  Architecture  cycle | March 15 2002 to May 3 2002 |  |

**Table 6 – HIT Cycles**

The TSP process has been tailored to the HIT team’s needs with the following structure:

* + 1. **Modifications to TSP**

Role responsibilities will be adjusted and new roles will be created as defined in section 3. Checklists and forms are not used in practice for day-to-day activity.

* + 1. **Requirements Phase**

Big Boal will elicit the client and system requirements by analyzing the Excel-based TSP Support Tool for the software development product and gather general information about the proposed project. Once HIT obtains and organizes all the requirements for the system, the scope of the project will be clearly defined. The output of this phase will be SRS.

* + 1. **High-Level Design Phase**

During the phase, HIT creates the initial architecture and high-level design for the system. The high-level design document will be the deliverable.

* + 1. **Implementation Phase**

The exact number of iterations will be determined once the high-level design phase is in progress and a clear idea of the project implementation is available.

Each iteration will contain the following mini-phases:

* Detail Design
* DLD Review
* DLD Inspection
* Code
* Code Review
* Compile
* Code Inspection
* Unit Test
  + 1. **Integration and System Test Phase**

Once the implementation has been clearly done, integration and system test phase of the project will commence. Integration test should be preceded before system test. System test will satisfy the predefined test goal.

* + 1. **Delivery Phase**

The final products from all the project phases, along with the supporting documents, will be given to the client.

* 1. **Methods, tools and techniques**
     1. **Methods and Techniques**

The methods and techniques listed in this table will be evaluated and applied in specific areas of the project as appropriate:

|  |  |
| --- | --- |
| **Category** | **Methods and Techniques** |
| Requirements Elicitation | * Meetings * Questionnaires * Emails * Brainstorming |
| Formal Specification and Analysis | * Formal models using UML to model structural aspects of the requirements and design * Use cases to define requirements |
| Estimation | * Delphi method count to effort may be used for size estimation and project scope definition. |

**[Table 6‑2] Methods and Techniques**

* + 1. **Tools**

All development for the project will be done in Microsoft Visual Studio 2010. Additionally, we will use Microsoft Visio 2010 model the actual and future version of requirements and requisite process and visual source safe for version control.

|  |  |
| --- | --- |
| **Category** | **Tools** |
| Operating System | * Windows 2007 |
| Development languages and databases | * To be determined. Likely choices are Microsoft Visual Studio 2010 * SQL |
| Design | * Rational Rose Enterprise Edition |
| Document | * All document will be written using Microsoft Word |
| Project Planning and Tracking | * Master Plan * Meeting Minus * Time Log |

**[Table 6‑3] Methods and Techniques**

* 1. **Infrastructure plan**

The team has access to four Windows 2007 Workstations and limited access to four laptops that are owned by members of the team. The team stores version control documents and the team SVN. In addition, the resources from the SPM program are available to the team such as library, lab…

For communication makes use of the telephones and emails as well as chat ware like Yahoo Messenger.

* 1. **Product acceptance plan**

There will be one form of product acceptance for the project: is customer acceptance

For customer acceptance, the product will be delivered as indicated in section 4.6 Closeout plan. Before closeout, the customer will be invited to review the material for the SPM class and in a formal customer review meeting. At that time, the software developed will be demonstrated, and it will be considered delivered and accepted. This may result in additional requests for changes and improvements.

1. **Supporting Process Plans**

This section of the SPMP will include the plans for the supporting processes that are part of the software project. These plans include: configuration management plan, software document, quality assurance, and process improvement plan.

1. 1. **Configuration Management Plan**

HIT configuration management plan is a part of a separate document and it will be maintained.

* 1. **Document Plan**

There are a number of documents that will be produced during the lifetime of the project. All documents are responsibility of the project team members. The list of documents that will be created and maintained under version control include:

* Statement of Work (SOW)
* Software Requirements Specification(SRS) – defines the functionality that is required by the client.
* Supplementary Specification(SS) - defines the nonfunctionality that is required by the client.
* Design Specifications – defines the structure of the system.
* Test scripts and test results – tests that are executed have to be recorded.
* Risk Management Statemenet – defines risks and each mitigation plan.
* Defect log – log of all the defects and their current status.
* Metrics log – log of collected metrics data.
* Inspection reports – insepction results of all phases of the project.
  1. **Quality Assurance Plan**

HIT quality assurance plan is a part of a separate document and it will be maintained.

* 1. **Process Improvement Plan**

Process improvement will be done as a part of the final project evaluation and “lessons learned” phase. At that time the process improvement plan will be created. Process improvement plan is maintained in HIT document.

1. **References**

[1] Humphrey, Watts. *Introduction to the Team Software Process*. 12/99.

[2] Project Plan of PAMD: Developing a Plug-In Architecture for Palm OS-Powered Devices Using Software Engineering (1998)

[3] Mini Project Requirement: Auto SMS