Final Reflection

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Key Concepts Learned

1. **Project Basics & Lifecycle**
   Acquired detailed understanding of project fundamentals, including the unique nature of software projects. Learned about phases like initiation, planning, execution, monitoring, control, and closure, and understood how project lifecycle is related to software lifecycle activities.

2. **Project Planning & Initiation**
   Acquired information to create project charters, scope definition, goals, and work breakdown structure. Understood top-down vs. bottom-up planning, work breakdown structures (WBS), and critical path methods (CPM).

3. **Effort, Cost, Schedule, and Resource Estimation**
   Mastered estimation techniques such as Function Point Analysis, Delphi Method, COCOMO models, and effort sizing. Familiarity with cost drivers, budgeting methods, and the importance of estimating accuracy during different lifecycle stages.

4. **Risk Management**
   Acquired identification, estimation, and prioritization of risks using qualitative and quantitative techniques. Learned mitigation strategies such as acceptance, avoidance, transfer, and contingency planning.

5. **Configuration Management**
   Understood the critical role of configuration management in software version management, change request management, baselines, and traceability. Felt the value of status accounting and configuration audits.

6. **Project Monitoring & Control**
   Learned techniques for using Earned Value Management (EVM), scope and cost variation management, and application of measures to quantify schedule variance, resource utilization, and quality assurance effectiveness.

7. **Software Design, Construction, and Testing**
   Explored refactoring, modular design, code quality practices, unit testing, test automation, and defect life cycles. Gained knowledge on iterative testing techniques and verification/validation processes.

8. **Release and Maintenance Management**
   Gained knowledge on the release lifecycle, including documentation, training, last-minute changes, and post-release maintenance activities (corrective, adaptive, preventive). Gained knowledge on re-engineering and forward/reverse engineering models.

Applications in Real Projects

Worked in a team on a project called "Autonomous Delivery Drone Management System", where project management principles were put into direct practice. Major contributions and experiences:

1. **Project Initiation & Charter:** Established project goal of automating last-mile delivery through drones.
2. **Scope & Planning:** Used WBS and bottom-up planning to allocate work and estimate effort.
3. **Risk Mitigation:** Identified technology, regulatory, and scheduling risks and developed mitigation plans.
4. **Configuration & Testing:** Used version control with Git, applied unit and integration testing, and tracked defect lifecycle across sprints.
5. **Design & Development:** Used incremental development through object-oriented design, applying refactoring techniques on development cycles.

Peer Interactions

Team collaboration was essential in making the project successful. We used:

- GitHub for versioning and collaborative coding
- WhatsApp for tracking tasks and real-time communication.
- Google Docs and OneDrive for collaborative documentation and presentation slides.

These tools facilitated transparency, coordinated our activities, and solved problems quickly.

Challenges Faced

- **Time Management:** Coursework, personal work, and project work management was tough.
- **Scope Changes:** Coping with evolving project requirements tested our planning flexibility and required rework.
- **Technical Complexity:** Collaborating with technologies engaged in drone simulation and backend integration required sharp learning and constant communication.

By addressing these challenges, I developed a stronger grasp of adaptive project management and the importance of contingency planning.

Personal Development Activities

This week's activities significantly contributed to my professional growth in:

This course significantly enhanced my critical thinking as a project manager. The following are the main takeaways:

- Improved planning, estimation, and risk management skills.
- Greater configuration and quality assurance process insights.
- Improved teamworking and leadership.

Most importantly, I now appreciate the discipline, ethics, and systematic thinking associated with running effective software projects. This course has prepared me to tackle real-life challenges with an effective set of methodologies, tools, and strategic techniques.

Appreciation

A heartfelt thank you to Professor Joumana Dargham for educating us in such a great course. Your dedication and teaching made complex topics to practicality and simplicity. Thanks also to the TAs for their constant support and feedback.