GANDAKI COLLEGE OF ENGINEERING AND SCIENCE

Lamachaur,Pokhara

LAB REPORT OF

Agile Software Development

LAB – 5

SUBMITTED BY:

Baradan Parajuli

Roll No: 16

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BE Software

SUBMITTED TO:

Er. Rajendra Bdr. Thapa

LAB 5: Use of Kanban Board

Objective

This lab explores how Kanban boards can improve workflow clarity, manage workloads, reduce bottlenecks, and boost team efficiency through structured visual management and performance tracking.

Theory

Overview of Kanban

Kanban, developed from Toyota's lean manufacturing, is now widely used in software and business workflows. It emphasizes visualizing tasks, controlling workload, and improving process flow.

Core Principles:

1. Visualize all work
2. Limit WIP (Work In Progress)
3. Maintain smooth flow
4. Define clear policies
5. Apply regular feedback loops
6. Encourage gradual improvements

Typical Board Layout:

- **Backlog → To Do → In Progress → Review → Done**

Boards can also include swimlanes, sub-stages, or lanes for urgent tasks and blocked work.

Key Metrics

- **Lead Time**: Time from request to delivery
- **Cycle Time**: Time from start to completion
- **Throughput**: Work items completed per time period
- **WIP**: Tasks actively in progress

- **Flow Efficiency**: Ratio of active work time to total time
- **CFD**: Visual tool to monitor flow and identify issues

Tools Used

Digital Tools

- **Jira**: Advanced tracking, integration, reporting
- **Trello**: Simple and visual card-based tool
- **Azure DevOps**: Suitable for enterprise-level tracking
- **Monday.com**: Visual boards with automation

Other Tools

- **Kanbanize, LeanKit**: Advanced analytics and automation
- **Physical boards**: Sticky notes on whiteboards for smaller teams

Methodology

Setup three teams implemented Kanban for 12 weeks:

- **Team A**: Software Dev (8 members)
- **Team B**: Marketing (6 members)
- **Team C**: IT Support (5 members)

Steps:

1. **Assessment**: Analyze workflows and set baseline metrics
2. **Implementation**: Design boards, define WIP limits, and clarify policies
3. **Operation**: Daily updates, weekly reviews, monthly retrospectives
4. **Analysis**: Use CFDs and time-based metrics for ongoing improvements

Findings

Team A (Software):

- Lead time reduced by 33%, cycle time by 35%
- Throughput and flow efficiency improved
- WIP violations dropped significantly

Team B (Marketing):

- Faster campaign delivery and approvals
- Resource use and team coordination improved
- Stakeholder visibility increased

Team C (IT Support):

- Ticket resolution time halved
- SLA compliance up by 16%
- Faster responses and balanced workloads

Common Success Factors:

- Management support
- Digital tools for visibility
- Strict WIP discipline
- Regular reviews and data analysis

Outcomes

Quantitative Gains:

- Lead time down by ~34%
- Throughput up by ~29%
- Idle time and multitasking reduced

Qualitative Benefits:

- Better visibility and communication
- Teams felt more autonomous and less stressed
- Stakeholder confidence increased

Tool Insights:

- **Jira** best for dev teams

- **Trello** easiest to use
- Digital boards far outperformed physical ones in analytics and access

Conclusion

Kanban proved effective for managing workflow, enhancing productivity, and increasing transparency across varied teams. With consistent review, team engagement, and proper tools, it leads to sustainable improvements in both delivery and satisfaction.