Koneru Lakshmaiah Education Foundation
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OFFICE OF DEAN ACADEMICS

Policy Document

KLEF/ODA/1.3/P13005/2022/V1.1 **Date: 06/05/2022**

Title: Capstone Project (Engineering Departments)

Policy:

Capstone Project is a culminating assignment carried out by the students during the final year of the program which helps them to apply the knowledge gained over the previous years of study. Students should focus on designing solutions for complex engineering problems through technology.

Outcomes:

- Encourage students to think critically and solve challenging problem(s) by designing innovative solutions through the acquired technical expertise.
- Develop skills related to communication, project management, inquisitive learning, and teamwork.

Procedure:

1. Students will be formed into batches of 3-5 from the same specialization under a guide.
2. Each Section/class is assigned with a dedicated Section InCharge to monitor the progress of all the projects in the section/class.

3. It is required by the students to spend a minimum of 50% of their contact hours dedicated to the Project work and credits will be given accordingly subjected to the approval of Dean Academics.

4. 50% of the total time spent on projects be monitored (online or offline) and attendance be taken by the respective mentor. The remaining 50% of the time the student is required to work on their own by seeking the instructions from their guide.

5. Departments are required to create an Internal Review Panel consisting of the Guide, Mentor and 1 or 2 Professors having expertise in the domain of work.

Project Management Practices:

Project teams will be using Agile Project Management Practices for execution of the project. This helps projects to have product/prototype/solution.

Feature/Objectives Planning: Project Proposal is to be presented by the team to the guide. After reviewing the proposal, the guide should instruct the team to come up with a list of features/objectives.

1. User Stories: are smallest units of work. It should be written from a USER's perspective. A USER is the person who is going to use the system you are going to develop.

- Format for User story: "**As a [persona], I [want to], [so that].**"
    - Example: A task is to have a button to control Lights in a Room
    - User story would be, "As a User, I should be able to control Lights, so that I can turn ON and OFF".
- Every Feature/Objective will have multiple User Stories

Tasks Under Each User Story:

- Each User story will have sub-tasks that are to be performed by the team
- These are understandable to the team which is working.
- Multiple Features---> Each Feature ---> User Stories > Tasks
- Sprints: Sprints are usually considered 2 weeks of work
    - Sprint Planning: The Team will plan what to do together for the next two weeks
        - User stories will be picked from the list upon priority to do for 2 weeks
        - Tasks will be allotted to each person in the team. Guide should acknowledge the Sprint Plan.
    - Sprint Review: At the end of two weeks, the guide will review the accomplishments of the planned sprint and then the next sprint will be planned.
- Standups: Standups are everyday meetings that a team should have with the guide
- Standup Meeting should happen first thing in the Morning (to be recorded in MS Teams or may happen offline as per the convenience of guide)
- Duration of Standup preferably be 15-20 Minutes
- Things to be discussed by everyone in the standup:
    - What did I do Yesterday?
    - What will I do Today?
    - What are the challenges I am facing and support I need to move ahead?

Scrum/Kanban Boards:

- Task should be created as cards on the KL Project Management tool (projects.kluniversity.in)
- Tasks should be assigned to team members along with due date
- Backlog, To-Do, Doing, done as status which will reflect the status of the task
- These are to be moved by everyone from one state to another (to-do -> doing) to track the progress of the project.

Usage of GIT-Version Control (appropriate to the requirements of the department)

- Projects involving programming should use GIT – Version Control and use the same platform for code management
- https://www.youtube.com/watch?v=4lxvVj7wlZw

Project Management Role Mapping:

Supervisor	**Mentor (Faculty for a group of batches)**	Sprint Planning and Review Tracking the Project Monitoring the dashboard in code.kluniveristy.in
Project Manager / Product Owner	**Guide**	Sprint Planning Daily standup Guiding the Project
Team Lead/ Scrum Master	**Student – Project leader**	Manager the Milestone tracking, board setup
Team Members, Developers, Testing, Documentation	**Students**	Handles Execution of Project

Standups – Guide and Student Team

Sprint Planning and Sprint Review – Mentor, Guide and Student Team

Internal Reviews – Professor/Senior Faculty, Mentor, Guide and Student Team

Timeline:

Week	Activity	Handled By	Monitored By
Week 1-4	Feature/Objectives Planning	Guide	Mentor
	Agile Project Management	Supervisor	Mentor
	User Stories and Tasks	Guide	Mentor
Week 5,6	Sprint 1	Guide	Mentor
Week 7	Internal Review 1	Review Panel	
Week 7,8	Sprint 2	Guide	Mentor
Week 9,10	Sprint 3	Guide	Mentor
Week 11	Internal Review 2	Review Panel	
Week 11,12	Sprint 4	Guide	Mentor
Week 13,14	Sprint 5	Guide	Mentor
Week 15	Internal Review 3	Review Panel	
Week 16	Sprint 6	Guide	Mentor
External Review			

1. Maintaining a Diary Individually and Updating it Every day in Project Repository. https://youtu.be/Mxt_8pOsPao
2. Milestones are to be planned and created. https://youtu.be/jsxVpahYF1U
3. Issue Boards and Individual Tasks Assignment is to be done along with due date

4. Everyday Meeting (Standups) with Guide must happen and discuss "What you did Yesterday, what will you do today and What are the things blocking you"

Note: The whole Activity is Logged with timestamp, the frequency of updates will be reflected in evaluation of that component.

5.

Procedure to use KL Project Management Tool: (Departments may use other Project Management Tools in addition to this)

6. Everyone should create accounts in Project Portal

7. The projects will be public and can be accessed by anyone across the world. So, use the proper name to represent yourself publicly.

8. After creating project Add All teammates using **Settings -> Members**

9. Next, **Settings -> Repository -> Protected Branches** and perform UNPROTECT

10. **Issues -> Milestone Feature –** can be used for Sprint Planning. Create a Milestone at the beginning of each sprint and allot 2 weeks of time.

11. **Issues –> List** Create New Issue for every Subtask, assign it to the teammate, add a tag to represent the nature of task, Add it to the Milestone and a Due Date.

13. **Wiki** – This is where you write your Features, User Stories
14. **Repository** – This is where you can store your processes, codes, and collaborate with the team.
15. GIT Version Control can be used to manage the code or documents commonly across the entire team.
16. https://www.youtube.com/watch?v=tv4UM1ruQRs and many more tutorials

Review Schedule and Weightages:

	IN SEM (60)			END SEM (40)
Component	**Review 1**	**Review 2**	**Review 3**	**Final Review**
Schedule	Schedule to be released by the departments prior to the commencement of the semester			
Weightage	20	20	20	40
Max Marks	50	50	50	50

Evaluation plan:

In Sem Reviews	**End Sem Review**	**Score**
Project Diary - Daily Updation	**Project Report** –Quality (in terms of following the guidelines) & Plagiarism	**10**
Project Management – Milestones, Issue Boards, Files and Documents Regular Updation		**10**
Results Demonstration – Simulation/Model/Product/Solution Results		**10**
Presentation – Slide Deck and Presentation Skills		**10**
Guide Marks	**Viva Voce**	**10**

****10 Additional Marks in End Sem for participation in Hackathon, National Level Event with the Project Prototype or If published in Scopus/SCI Journal.**

Capstone Project in Interdisciplinary mode:

Identification of projects (Interdisciplinary) and allocation:

- Students are required to do the literature survey on the problems of interdisciplinary nature to formulate the problem statement with a brief synopsis on the intended project work.
- Proposals are to be discussed along with project committee involving project coordinators from the respective departments to discuss their relevance from implementation & availability of resources viewpoint.
- The students are encouraged to consult the experts from Industry/ Research labs/ Government Organizations/ any other Higher education Institute/NGO's by taking the support of the department to carry out their project in inter – disciplinary area.
- Each Section/class is assigned with a dedicated Section Incharge to monitor the progress of all the projects in the section/class.
- Each team consists of a maximum of 3-5 students out of which 50% of the students must be from other departments failing which the project will be treated as a regular project and guidelines of regular project will be applicable.
- There should be two guides from each department to carry out the project and the progress/review/evaluation are to be monitored in regular intervals.
- All the reviews should involve both the project guides and evaluation by the panel of experts / guides while calculating the average marks.
- Grades calculated for each student member will be considered against the work done on the Project category and due credits will be assigned by the respective department based on the regulations of their program of study.

Continuous Monitoring & evaluation:

- Student members are required to meet their faculty supervisor(s) on a weekly basis.

- A weekly assessment report duly signed by the faculty supervisor(s), needs to be submitted to the project coordinator.
- At least 3-4 presentations are to be scheduled during the semester at regular intervals.
- It is ensured that the student completes all the phases of the project development by his own to learn and apply the concepts in order to gain enough confidence to do real projects.
- Parameters to analyze the quality of student projects and award of marks:
- Ability of the students to demonstrate the overall idea & objectives.
- Ability of the students to demonstrate innovation, unique features and use of project in real world.
- The ability to use design methodologies to prepare a model/design of the overall project.
- Ability to apply the concepts of software engineering & project management concepts for designing, implementation, documentation etc.
- Ability to present the results & outcomes in an appropriate manner.
- Appropriate rubrics for evaluation of the project be made by the department in alignment with the Evaluation plan.
- Evaluation Plan and weightages remain same as mentioned above.

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