Batch: A2	**Roll No.: 1911027**
Experiment / assignment / tutorial No. 3	
Grade: AA / AB / BB / BC / CC / CD /DD	
Signature of the Staff In-charge with date	

Title: Plan various project activities based on duration estimation and Draw AOA and AON diagram to represent the activities and dependencies. (CPM).

Objective: Identify various activities in the project and represent it with a Gantt chart. Draw AOA & AON diagram.

Expected Outcome of Experiment:

Course Outcome	**After successful completion of the experiment students should be able to**
CO 2	Plan various project activities based on efforts and duration estimations by analysing risks involved in it.

Books/ Journals/ Websites referred:

1. *Bob Hughes, Mike cotterell, Rajib Mall"Software Project Management", fifth Edition, Tata McGraw Hill, Special Indian Edition*
2. *Royce, "Software Project Management", Pearson Education, 1999.*
3. *Project Management Institute: "A Guide to the Project Management Body of Knowledge (PMBOK Guide)" 5th Edition Project Management Institute.*
4. *John Nicholas, Herman Steyn, "Project Management for Business Engineering and Technology" 4th Edition.*
5. *Davis J. Anderson, Andy Carmichael, "Essentials Kanban Condensed", LeanKanban University Press, 2016.*

Pre Lab/ Prior Concepts:

After receiving the confirmation about the approval and awarding of the project proposal, the project manager will start planning the project execution. Understand the content of the Project Proposal submitted to the sponsor.

New Concepts to be learned:

The Project Manager will now start preparing the project execution / implementation plan. The Scope of the work is broadly divided into various activities. These activities are represented in a form of activity table. This activity table typically will have following structure:

Activity Code	Particulars	Duration in Days	Predecessor(s)	Resource(s)
A				
A1				
A2				
B				
B1				
C				

As mentioned in the table above A, B, & C are the major activities which could be further broken down in sub activities such as A1, A2 etc. The duration required for implementation/ completion of these activities is typically represented in days / weeks (use a common unit for all the activities). Usually these activities are sequenced based on priorities and are also dependent on one another. The sequencing of activities is essential for appropriate utilization of resources. The name(s) of the (human) resource(s) are also mentioned. This will help not only to understand the flow of implementation but also utilisation of the resources.

Number of tools can be used for visualising the project development process. They are Microsoft Project, Scrum Boards, Kanban Boards etc.

Work-out :

The students are required to prepare a project activity table and draw AOA/AON diagrams.

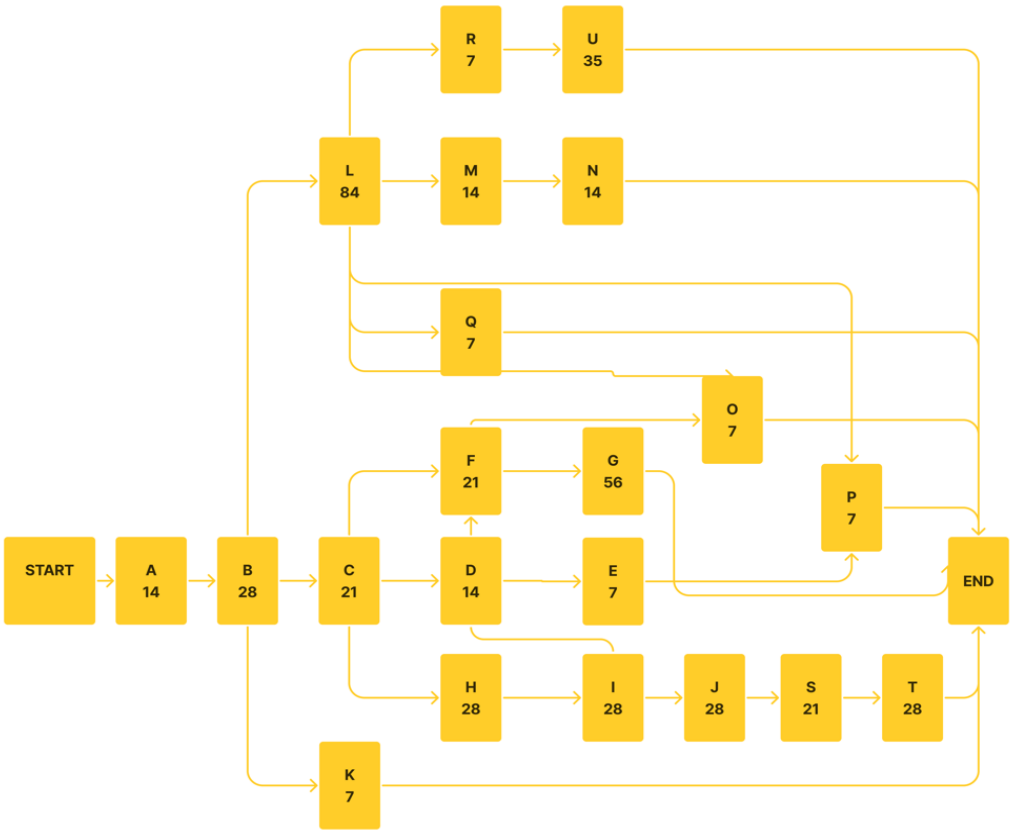
Resources:
Ritesh: R1
Kritarth: R2
Sneha : R3
Nayan : R4
Hussein: R5

Activity Code	Particulars	Duration in Days	Predecessor(s)	Resource(s)
A	Server and database procurement	14	-	R4, R5
B	Data Collection of existing EV infrastructure	28	A	R2, R3
C	Geospatial Analysis and site selection for public and semi-public charging stations.	21	B	R1, R4
D	Tie Ups with electricity provider.	14	C	R3
E	Charging station planning and pricing for private charging infrastructure.	7	D	R3
F	Pricing calculations for charging EV at public and semi-public charging stations.	21	D	R1, R2
G	Land Acquisition and	56	F	R3, R4

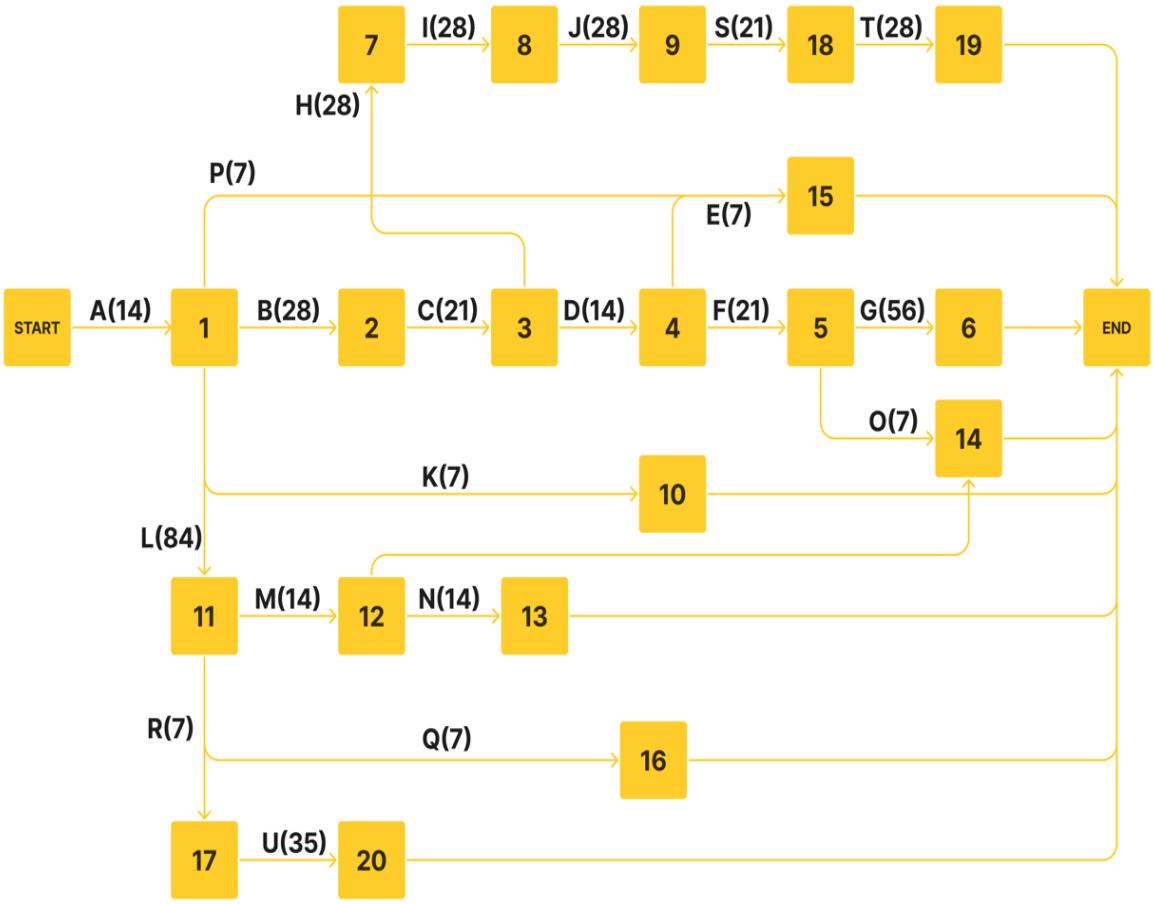
	permissions for installing charging stations.			
H	Charging stations logistics, delivery and tracking.	28	C	R4, R5
I	Connecting EV charging stations to electricity grids.	28	H, D	R1, R5
J	Installation of EV charging stations.	28	I	R1, R2, R3, R4, R5
K	Hardware facility for diverse Electric vehicles	7	B	R1, R5
L	Mobile application Development and Deployment.	84	B	R1, R2, R3, R4, R5
M	Searching for nearest EV charging points along with availability status.	14	L	R5, R4
N	Electric Vehicle bookings.	14	M	R5, R4
O	Reservation and pricing for charging slots at public charging stations.	7	F, M	R1, R3
P	Renting private and semi-public EV charging stations.	7	E, L	R3
Q	Requests for new construction of EV charging stations.	7	L	R1

R	Feedback Collection.	7	L	R2
S	Calculation of daily energy requirements for EV charging stations.	21	J	R1, R5
T	Analysis for the removal of Redundant EV charging stations.	28	S	R5, R3
U	Maintenance of the charging station and Customer complaints resolution.	35	R	R1, R2

Activity on node (AON):



Activity on arrow (AOA):



Post Lab Questions

1. What are Kanban Values ? Explain them in brief

ANS)

Q=1)Ans) Kanban is a method visualizing your work. It gives you a common understanding of the work you are doing. This includes the rules by which you do the work, how much you accomplish in a given time. and how good your work results are at the end. The Kanban method is based on a system of nine values. Respect is the foundation on which the other values are built. The 9 values are as follows:-

1) Transparency :- By an open exchange of information and a clear and unambigious vocabulary you create transparency in all areas.

2) Balance :- You are efficient if you balance the different requirements, views and abilities of all participants among each other.

3) Collaboration:- The Kanban method improves the way people work together. Collaboration is therefore one of its key points.

4) Customer focus:- The customers and the value (asset) they receive are the natural centre of interest of all persons involved in the company.

5) Work flow:- Work represents a continuous or occasional flow of values. An important starting point in using kanban is to recognize and maintain such a flow of work.

6) Leadership:- Leadership is required at all levels to generate value and achieve an improved state.

7) Understanding:- Understanding means first and foremost self-awareness, both from the individual employees as well as from the entire organization to move forward.

5) Agreement:- In agreement, all parties agree to pursue goals together, different opinions and approaches must be respected. These different points of view should converge.
6) Respect:- Respect for people in the form of appreciation, understanding and consideration is the foundation on which the other values are based.- start with what you are doing and look at how what you are doing meets or does not meet the needs of people inside and outside the organisation.

2. What are Kanban Agendas?

ANS)

Ans) Kanban consists three agendas for change necessary to organization success:-
1) Sustainability:- This agenda is about finding a sustainable pace of work and optimizing the focus on the inside of the organization. Its goal is to create services that balance demand with existing performance. When demand exceeds performance, employees are overloaded with work. Introduce transparency about the workload and bring it into balance with the performance of the employees.
2) Service orientation:- It deals with the performance of the company and customer satisfaction. It focuses on the customers and starts from the actual purpose of the company. Kanban is about providing services and continuously improving them. The goal of the service orientation agenda is to provide customers with the services which meet the company's purpose.

3) Survivability:- It is about staying competitive and adaptable. It deals with the future of the company. Its aim is to ensure that it continues and is successful in times of significant change. Technologies and processes that are currently sufficient must be adapted to constant change.

3. Explain in brief, the general practices of Kanban.

ANS)

Q-3) Ans) The 6 kanban practices are :-

1) Visualize :- Most people involved in project management are familiar with kanban boards, whether used in scrum meetings or online task management. Think of these as dashboards for project work where the intention is to give visibility to as much information as possible in a format that is easy to understand.

2) Limit work in progress (WIP) :- Limiting WIP ensures that at any point in time there is never too much or too little work to do. You want to have just the right amount of cards on a kanban board that can be handled by resources available.

3) Manage flow :- Flow refers to the movement of work items across stages of a process, as represented by cards on a kanban board.

4) Make policies explicit :- By having an explicit understanding of issues, operations, and rules, discussions become more rational and objective. Objective, these needs to be documented and shared across the project team. The intention is to prevent emotion and subjective views from seeping into the decision process.

5) Implement feedback loops:- feedback and continuous improvements are critical for kanban as they are for other agile frameworks. In kanban feedback is gathered at different stages of a project:- during meetings or at delivery, operational and reviews.

6) Improve collaboratively, evolve experimentally:- In kanban, collaboration and experimentation go hand in hand as long as there is clarity and consensus on how to approach work and issues.