

## **COVID – 19 PANDEMIC MANAGEMENT IN THE RESIDENTIAL PREMISES OF EDUCATIONAL INSTITUTIONS.**

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### **Abstract**

Covid 19 pandemic has severely affected daily lives. It spreads exponentially, taking many lives and shutting down essentially all outside activities. Since no completely effective vaccines are found yet so far until late December 2020, the only effective way to prevent infection from spreading is to maintain social distancing and precautionary methods. The government banned the gatherings to break down the exponential growth chain. To implement this, a lockdown was imposed. This decision had impacted almost every sector, be it industrial, agricultural, tourism or educational. However, as the condition is getting better, life is becoming as it was earlier before the pandemic, slowly resuming all activities. Since the educational institutions are also about to be opened after being closed for nearly 8 months, since march 2020, it is a very challenging task to ensure safety in the college premises without compromising with the health of the faculties, staff and the stakeholders. In this paper, there are various suggestions discussed using which, safety and proper arrangements can be implemented and optimized in the best case wherein the institutions can run uninterruptedly in the case of any pandemic. This paper also discusses the precautions which can be taken if there is a similar situation nearby future

**Keywords**—Covid-19

### **1. INTRODUCTION**

At the end of December 2019, Covid 19 pandemics struck the globe. Around 7,47,30,282 were contaminated, and as of December 17th, 2020, 16,58,942 died worldwide.[1] The severity of Covid-19 symptoms varies from person to person and country to country, majorly governed by age, pollution, dirty commodities, and temperature level. Various researches and projects are going on to eradicate the spread of viruses and to control them efficiently. The situation saw that people did not have the experience to tackle this unprecedented situation as the last pandemic Spanish flu, Over 100 years ago, it has been found that people had no living memory of dealing with a similar circumstance.[2]. Since it has been a year. People have to cope with this situation and move on. The inexperience in coping with these situations have caused a lack of mismanagement. Now people should be ready to tackle every similar situation. The world saw a total lockdown, and now people have started working, and institutions have opened. However, the world is yet to conquer the situation. In a study conducted in India, the key lessons learned are (1) No substitute for community action (2) Risk is international, resilience is native (3) From managing risks to managing uncertainty (4) From managing risks to assembling resilience[1]. The principle of resilience was integral, and risk management should become everyone's business. The world now seeks effective management systems to overcome this situation. It is coming up with solutions; in China, the Smart System of unwellness Management (SSDM) could be a series of mobile applications for chronic unwellness management that features each patient and doctor interfaces [3]. It has been implemented in China since 2015 and allows real-time interaction with doctors. The survey shows that 100% of the patients were satisfied with the interaction, preventing cross-infection. Immunity boosting and avoiding immune suppression practices can help in management at COVID-19. For good immunity, diet and nutrition are fundamental. In immunomodulation, vitamins like A, B, C, D, and trace elements including zinc, magnesium, and selenium play a dominant role[3]. Due to the delay in the antivirus vaccine, immunity-boosting can help fight the virus.

Social interactions are essential, and the world is improving on the situation; educational institutions are about to open ; This paper puts forth a system that can ensure campus safety. The management of stakeholders in the college and admitting them in the hostel requires guidelines and a need for a complex thinking approach. So, approaching this situation of admitting hostel stakeholders, So must construct the robustness and resilience to threats that may or may not yet be completely understood. Guidelines for dealing with uncertainty in socio-technical structures (1) take advantage of a range of viewpoints (2) provide slack tools (3) offer process and results visibility (4) monitor and appreciate the difference between work as imagined and work as completed (5) track unintended effects of changes and improvements[5]. In this report, useful instruments for recognizing outstanding and critical designs are explored in a comparison of concept selection in concept scoring and axiomatic design methods. This study compares the two design methods to obtain the perfect design concept [6]. The paper has used a powerful tool functional diagram to present the beneficial characteristics and improve performance. With the globe currently a worldwide village, the student's demands for appropriate housing have exaggerated as housing forms a part of stakeholders have to be compelled to perform well in their educational exploits therefore even in these things higher facilities have to be compelled to be provided.

### **2. DATA GATHERING METHODS**

The first and foremost step of any technical project is to gather information from the experienced and technical person in the current field, similarly here are some methods discussed to gather information in order to proceed with the problems and difficulties faced by the benefited person in the pandemic situations such as Covid-19. There are four methods of information gathering discussed here, firstly raw statements from the primary profiler such as stakeholders, teaching and non-teaching staffs, hostel wardens, etc are collected for their

preferences, secondly surveys are conducted based on need statements using google forms in order to have a better understanding of what people wanted and finally the survey results were taken and considered for interpretation of raw data into a revised version of need statements which will eventually have to be implemented in order to prevent the covid pandemic.

### 2.1 Raw Statements from Stakeholders

Raw statements are statements which are directly collected from the stakeholders who are likely to be involved in the hostel/ residential area wherein the needs of stakeholders are directly written as raw which is as such told by them. The following are some of the raw statements from the stakeholders.

- 1.) I often forget my mask.
- 2.) I fell ill so easily.
- 3.) I don't have a private vehicle to reach the college.
- 4.) I need my surroundings to be clean.
- 5.) I often forget to wash my hands with soap.
- 6.) I fear being in crowded places.
- 7.) I fear using other's plates/glasses in the mess hall.
- 8.) If I do not attend classes due to some sickness I will miss my classes.
- 9.) I am suspicious that using a gym/swimming pool will increase the possibility of corona spread.
- 10.) How can I dine at places like a cafeteria other than college mess without facing crowds?
- 11.) How can I be sure there are no corona victims entering college.

### 2.2 Interpretation of Raw Data from Stakeholder Statements:

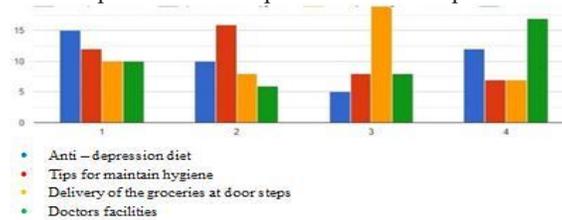
Interpretation involves gathering data from the stakeholders statements to bring them to a conclusion of what is their actual need and how it can be processed. It is a revised version of need statements stating the exact need and the mission towards the generating a concept for preventing the pandemic in residential premises. The following are some of the revised need statements which are to be implemented in order to have a better prevention of covid 19 pandemic.

- 1.) Stakeholders are checked with temperature and provided with masks at the campus.
- 2.) Medical facilities are provided in the campus.
- 3.) Mostly private vehicles are welcomed, if not College vehicles are available to long distance areas.
- 4.) Proper sanitation and germ protection facilities are made in hostels and classrooms.
- 5.) Hand sanitizers are provided in most of the places inside the campus.
- 6.) Social distancing is maintained wherever needed.
- 7.) Each student will be given plates, glasses, spoons individually which they have to wash by themselves.
- 8.) Classes will be taught live as well as they will be available online so if you feel even a little unhealthy you can attend the class from the room.
- 9.) All gyms/swimming pools will remain closed until the situation gets normal because these places cannot be sanitised properly.
- 10.) An app can be provided which issues a token of free timings for the cafeteria.
- 11.) Covid tests for stakeholders showing symptoms or coming from outside campus are quarantined for 14 days.
- 12.) Stakeholders are accommodated with hostel facilities until the covid crisis ends.

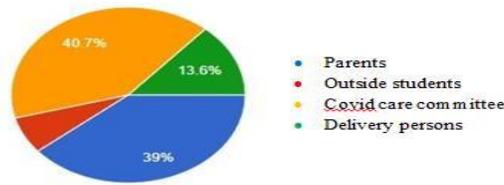
### 2.3 Interpretation of Data from Surveys

This chart has been compiled through the results of the survey collected from the college stakeholders to know the ideal conditions in reopening the college with hostel facilities by providing the following things like masks, gloves, hand sanitizer and hand wash soaps. Also providing facilities such as, viability to meet visitors, transportation, food medicines, conducting classes, restroom facilities and to face all the emergency situations for safeguarding the interest of stakeholders by taking all these precautions, by taking all these steps inside the college premises till the end of COVID-19.

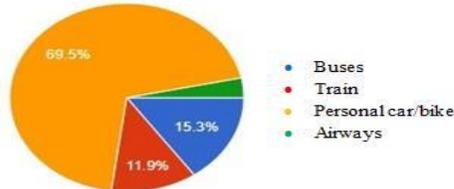
- 1) Which among the following is the essential need/provision to be preferred for the quarantined stakeholders inside the campus?



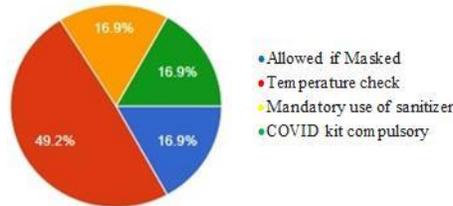
- 2) Who should be allowed to visit stakeholders in a hostel residence?



3) Which among the following is the best mode of transportation preferred for stakeholders to reach campus residence from outstation ?



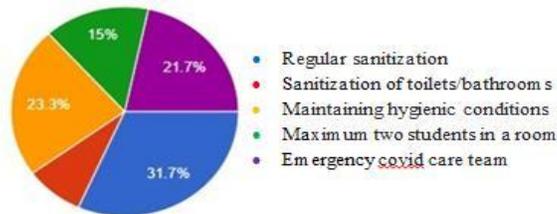
4) Which among the following is the most important precaution to be taken by the stakeholders who arrive at campus?



5) Which among the following arrangement is recommended in the canteen area for the safety of stakeholders?



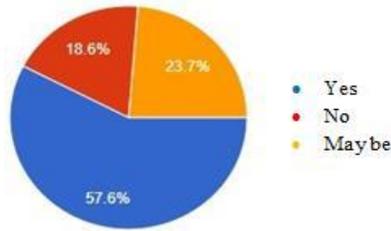
6) which is the most mandatory step to be taken in the hostel premises for safeguarding the interest of stakeholders?



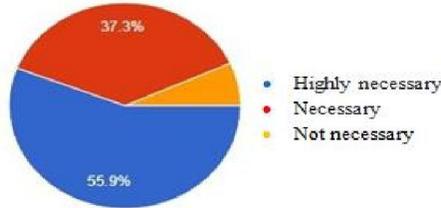
7) Which is the best medicinal precaution should be offered to the stakeholders for their well-being?



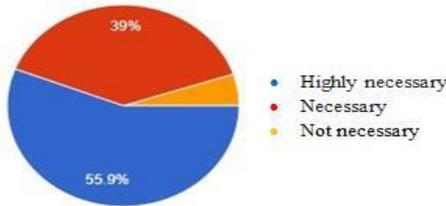
8) Do you want the classes to be conducted in shifts to ensure social distancing protocols?



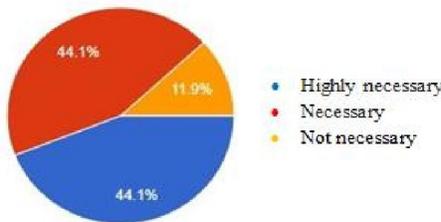
9) Should stakeholders be mandatorily tested for COVID 19 before admitting them in the hostel?



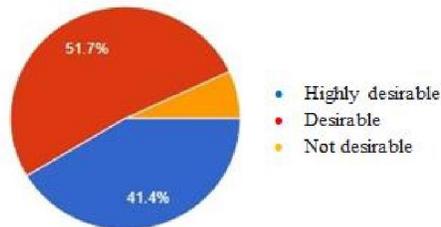
10) Should schools/colleges/ residential campuses be dis-infected regularly? Especially the main gate, washrooms, laboratories, classrooms, staffroom etc.



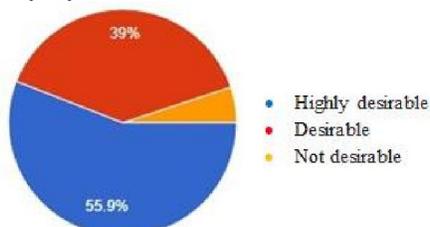
11) Should it be mandatory to follow social distancing inside the hostel?



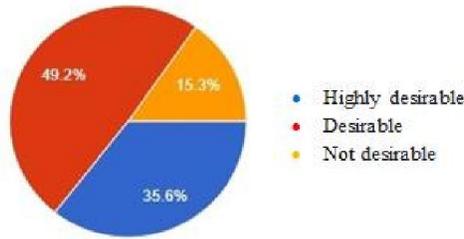
12) Should separate facilities be provided for quarantine purposes inside the hostel?



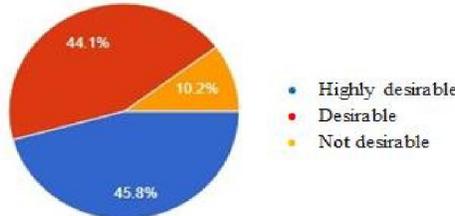
13) Should masks be provided inside the hostel, everyday ?



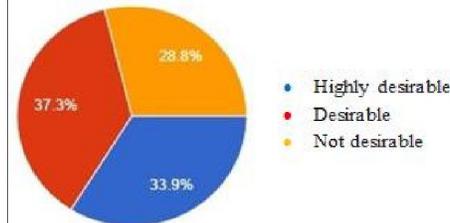
14) Should the food be delivered to the room to avoid gathering in the mess area



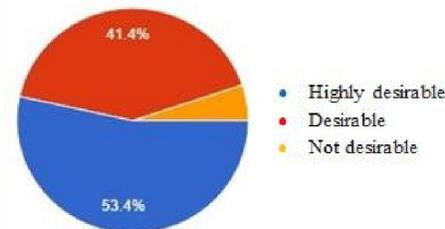
15) Should it be mandatory to sanitize the hostels room every day?



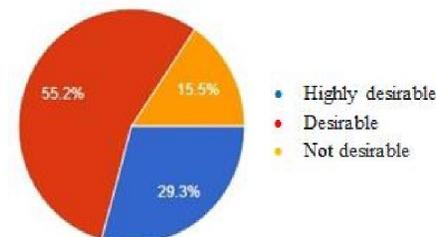
16) Should the stakeholders be allowed outside the hostel for any activities ?



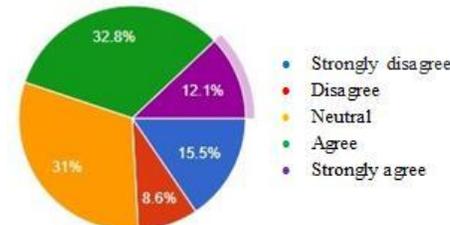
17) If a student shows any sign of symptoms of COVID 19, should they be quarantined and sent to hospital?



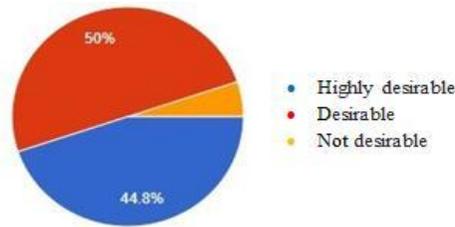
18) Will it be ideal to offer each student a single room to ensure minimum contact?



19) Should any facility be provided for stakeholders to buy things from outside?



20) Are medical facilities required to maintain stakeholders' health?



#### **2.4. Stakeholders needs as Hierarchical ranking**

Organization of customer needs can be said as Hierarchy. The results of steps one and a pair ought to be an inventory of fifty to three hundred would like statements. Such an oversized variety of elaborate wants is awkward and troublesome to summarize. The goal of step three is to arrange these desires into a hierarchical list, comprises a collection of primary desires and secondary desires.

##### **2.4.1 Procedure for organizing the requirements into a hierarchical list:**

For organising the requirements of customer needs which has been collected from customers, has to be changed as a hierarchical list as the options are limited. Thus, we follow these steps as procedures which are as follows

Ø Print or write every would like statement on a separate card or self-stick note.

Ø Eliminate phrases that are redundant.

Ø Group the cards in keeping with the similarity of the requirements they categorical.

Ø For every cluster, opt for a label.

Ø Consider making super teams consisting of 2 to 5 teams.

Ø Review and edit the declarations of structured needs.

##### **2.4.2 VARIOUS HIERARCHY COLLECTED FROM STAKEHOLDERS:**

After collecting survey and hierarchical statements from the customers, it has been categorised into 9 groups. From those groups, the statements are ordered based on their importance, i.e., critically important (\*\*\*) ,moderately important (\*\*), secondary needs(\*). This hierarchy statements will be used to form the rules and regulations. These regulations should be followed according to the categories inside the hostel premises. These 9 categories have been categorised as follows and it helps us to understand the hierarchy under each category.

###### **1.) SOAP, SANITIZER AND GLOVES FEELS GOOD IN THE USERS HAND AND KILL GERMS.**

This hierarchy under this category will explain the need for providing N95 masks, hand wash soaps, hand gloves and hand sanitizer which protects us from germs without any side effects.

\*\*\*Hand soap should be given regularly.

\*\*Hand sanitizer should be given regularly.

\*A pair of gloves should be given daily.

\*For visitors gloves should be given in the entry of the campus.

###### **2.) N95 MASK PROTECT THE USERS FROM GERMS AND FEELS GOOD IN USERS FACE.**

Under this category, the hierarchy will explain through the usages, comforts and look of one's face by wearing N95 mask which is used for filtering the air which one inhales and exhales.

\*\*Use and throw masks should be given daily or weekly to stakeholders.

\*\*\*If a reuse mask is given it should be washed daily.

\*Use and throw masks should be provided to visitors.

###### **3.) APP AND PRECAUTION MEDICINES HELPS THE USERS TO KNOW THE CONDITION OF THE BODY AND MAKE THEM FIT.**

According to this category, the hierarchy is ranked through finding our body condition by using application and by taking precaution medicines.

\*\*\* Kabasura kudineer for 5 days, zincovit tablets for 4 days, arsenic album-30 tablets for 3 day (4pills) should be given to all in alternate week.

\*\*Arogya setu app to be aware about their surroundings.

###### **4.) SAFE AND CONVENIENT IN THE EMERGENCY SITUATION.**

In this category, the hierarchy will be explained through the ranking of convenient facilities, In the case of finding positive cases of COVID-19 in hostel premises, thus to avoid keeping contact with others.

\*\*\* In case of any symptoms of covid 19 separate ambulances should be used to nearby covid treatment hospital.

\*\*stakeholders should be allowed outside incase of any emergency or highly needed by getting letter permission from higher officials by confirming with parents.

\*\*Yes facilities should be provided to the stakeholders to get things from outside to meet the emergency needs and the basic needs of the stakeholders .

#### 5.) PREVENT THE HOSTELLERS WHEN THEY MEET THE VISITORS OR NON HOSTELLERS.

From this hierarchy category, it gives an awareness to avoid contact with visitors or non hostellers and to keep the hostellers in a safe zone.

\*\*For each visitor time and rooms should be allocated in the visitors area by checking the temperature and it should be sanitized after each visitor.

\*\*\* When stakeholders/staff come from outstations they should be quarantined for 14 days in a quarantine area which should be glass covered, Fresh masks can be issued to the outsiders.

\*\*\* They should be allowed by checking wearing of mask, temperature and any symptoms and given with hand wash and hand sanitizer.

\*\*Disinfecting should take place regularly especially the gates at least twice in a day to avoid spreading covid 19 from non-hostellers or visitors.

#### 6.) AVOID SPREADING COVID-19.

Avoiding the spread of COVID-19 is another hierarchy category which helps one to follow the rules and regulations in a gathering area and to have the emergency center which needs to be working for 24/7.

\*\*\*A 6 feet distance should be marked in the billing area.

\*\*Table should be sanitized after each student's usage of the table.

\*\*It should be separated for hostel stakeholders and regular stakeholders.

\*\*One time use plates and hot water should be available (in mess area)

\*Food serves—max replicable eco friendly content while serving.

\*If they are not available in the stores.no-contact delivery to get any needs is needed.

\*\*Food should be given to stakeholders in the room to avoid group eating.

\*\*Hostel rooms should be sanitized and corridors are bleached with bleaching powder.

\*\*\*Health Centre in the college area should work optimally in providing the necessary needs.

\*\*\*Each Hostel can have one doctor who's specialist in treating the covid 19 with necessary medical kit.

\*\*Classes should be sanitized with mild smell, stakeholders should be masked, they should follow one table, one student table should be kept in distance.

\*Regular sanitation, maintaining hygiene is important.

\*\*Hostellers should take baths twice a day.

#### 7.) PREVENT THE NORMAL PEOPLE FROM GETTING INFECTED.

This hierarchical category explains the importance of preventing the normal people from the positive cases of COVID-19 with symptoms.

\*\*Necessary medication should be provided to the quarantined staff/stakeholders.

\*\*\*To safeguard the people from the covid-19 or if the stakeholders are showing such symptoms or suffering from covid19 immediate treatment could be given to them and they can be quarantined.

#### 8.) AVOID MAKING CROWD.

To avoid huge gatherings and spreading COVID-19, the steps to be undertaken are explained in this category with their hierarchical ranking.

\*\*One or two stakeholders can be given a separate room so that the stakeholders can feel comfortable .

\*Apart from it the spread of the disease can also be controlled by maintaining the social distance norms.

\*\*Wi-Fi should be available in all hostel areas to divert from making group studies or combine entertainment.

#### 9.) TO GIVE AWARENESS TO STAFFS AND stakeholders.

This hierarchical category ranks the importance about the spreading of awareness by keeping nudges to be in visible places to avoid gatherings.

\*\*Positive signs which nudges people to be more efficient in using the necessary steps in covid prevention like i)Thanks for using hand wash /sanitizer. ii) thanks for maintaining social distancing. iii) Signs with a smile and positive attitude which enables people to follow the same subconsciously. \*\*Creating more awareness of the personal and social hygiene in the campus area would help in ensuring the prevention of any infection.

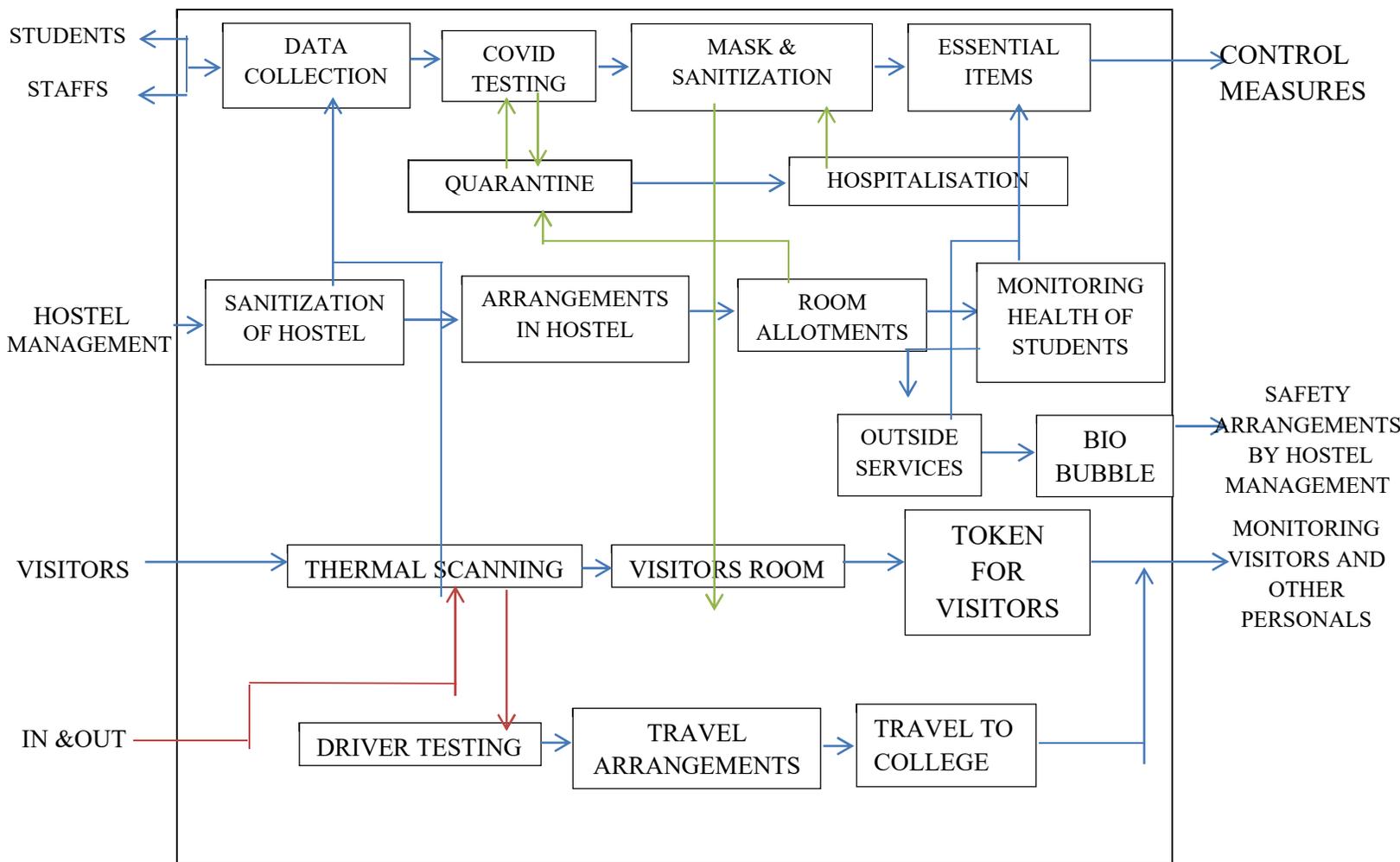
\*\*\*Disinfecting should take place regularly especially the washrooms, classrooms, staff rooms etc so that the virus can be destroyed or killed and it should be disinfected at regular intervals at least twice in a day.

**3. ConceptDevelopment :**

Concept Development is the process of generating various ideas to obtain solutions for a particular problem .After the research work is completed and we figure out what, why and how it is to be done, concept development is started in phases in an appropriate manner from just an idea to a final solution of the problem.

**3.1 Functional Analysis Diagram:**

The first and important aspect of developing a concept involves perfect analysis on customer needs, this analysis is firstly done by a functional analysis diagram. The important aspect of Design is the work undertaken by engineers is producing a functional analysis diagram to propose a concept similarly the pattern is followed here in Figure. Developing a new method for the conceptual design called functional analysis diagram which presents the main beneficial characteristics of the several methods permits the modelling of various product functions along with improved structures and is suitable for complex problems.[7]



*Chart : 3.1 Functional Analysis Diagram*

**3.2 Combination Table:**

The tool of systematic exploration in which solutions for each of the sub-problems of a design are combined by using a structured process to examine possible combinations of sub problem solutions ensures good solutions aren't left out of possible designs. The Concept combination tables offer a variety of designs that can be combined to make the best solution available also the combination table provides a way to observe combinations of solution fragments in order and Columns in the table correspond to the sub-problems identified for the specific design.

Conceptual combination refers to the cognitive process by which people use two or more concepts to construct a new conceptual entity that a single concept is insufficient to describe.[30]

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<b>TESTING</b>	<b>QUARANTINE</b>	<b>SANITIZATION</b>	<b>ESSENTIAL ITEMS</b>	<b>LODGING</b>	<b>DATA COLLECTION</b>	<b>MONITORING HEALTH OF STUDENTS</b>	<b>ARRANGEMENTS IN HOSTEL</b>	<b>VISITOR'S ROOM</b>
PCR Testing	Self-isolation	UV Disinfection	Mask, sanitizer	Single person per room	Via app	Via app	Food tokens	Separate room arrangement
Walking Testing	Quarantine at Hospital	Spraying chemicals to kill virus & bacteria	Rapid testing kit	More than one person with proper distancing	Seeking government help	Daily checking for symptoms	Food delivery to room	Non-contact type isolated arrangements
Regular Thermal Screening	Home Quarantine	Sanitization of campus premises, vehicles, guests, ect	Disinfectants that are non-harmful to humans	Less no of people allowed in guest house	Personal contact	Thermal scanning	Sanitization booth and water booth in each floor	See through sheet isolated arrangement
		Foam sanitization	Data collection devices	Dining services at a particular time for each block		Proper diet	Markings to maintain social distancing	
			Proper communication mediums	Non a/c rooms		Covid care team	Proper guidelines	
			Medical and quarantine facilities			Medication facility when required	Disposable food groceries	

			Disposable items like plates, glass for dining			24*7 medical facility on campus		
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Table: 3.1 Combination Table

### 3.3 Combination Tree

One of the methods for developing a concept is a combination tree which involves various combinations the design can be put into. Combination represents the different ways the following designs can be put into so that finally combinations of concepts are achieved. Here the combination is entirely focusing on the aspect of safety in the residential areas of the academic institutions.

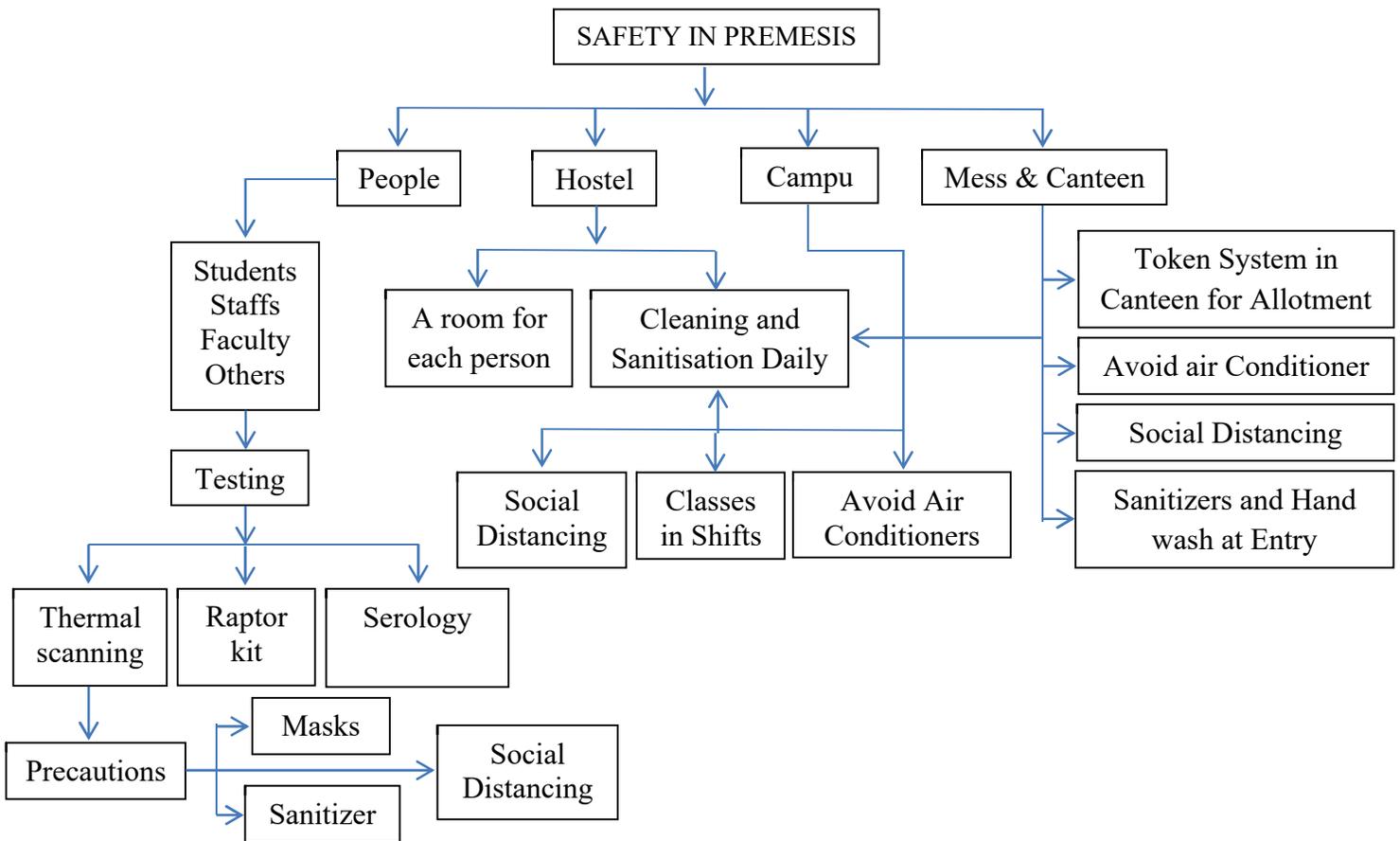


Chart: 3.2 Combination Tree

### 4. Concept Generation

In this section, various requirements are mentioned from the target customers which in this case are the teaching/non-teaching staff, stakeholders and their parents and other visitors. Based upon their need, relevant solutions are suggested.

Concept Generation is a process that starts with the requirements and specifications desired by the target

Customers and results in a number of design alternatives from which the most suitable design concept is selected which satisfies customer's needs.

#### a) Concept 1

**Sanitization:** Thermal sanitation that's through with the employment of either steam or heat water

**Covid Testings:** Swab test is used to take a sample from your nose or throat.

**Data Collection:** Data will be collected by seeking government help.

**Quarantine:** Quarantine at separate building of Hostel.

**Monitoring health of stakeholders:** Proper diet will be provided to the stakeholders that make the immunity stronger.

**Visitor's room:** Separate rooms will be arranged for the visitors.

**Lodging:** One person per room.

*b) Concept 2*

**Sanitization:** Sanitization done by spraying disinfectant.

**Covid Testings:** Testing of stakeholders to be done by PCR testing.

**Data Collection:** Data collection via app.

**Quarantine:** Quarantine facilities are provided in the College itself.

**Monitoring health of stakeholders:** Daily checking of symptoms will be done.

**Visitors room:** Non-contact type isolated arrangement should be done.

**Lodging:** More than one person with proper distancing.

*c) Concept 3*

**Sanitization:** Pressure improvement cleansing is completed with the assistance of a robust force of flowing water.

**Covid Testings:** Blood sample is taken from a vein in the arm for testing.

**Data Collection:** Data collection via personal contacts.

**Quarantine:** Covid centre will be provided for isolation purposes.

**Monitoring health of stakeholders:** Covid care teams are available for health checkup.

**Visitors room:** See through sheet arrangement will be provided for visitors.

**Lodging:** Less number of people will be permitted in the guest house.

*d) Concept 4*

**Sanitization:** Antimicrobial Sanitization can be done.

**Covid Testings:** Serologic Testing of Covid-19

**Data Collection:** Covid-19 Information Booths.

**Quarantine:** Self/Home Quarantine.

**Monitoring health of stakeholders:** Health can be Monitored Via Apps and Smart Watches.

**Visitors room:** Social Distancing Rooms for Visiting.

**Lodging:** Screened Rooms with Separate doors.

e) *Concept 5*

**Sanitization:** Chemical Sanitization can be done.

**Covid Testings:** Rapid in-clinic antigen testing.

**Data Collection:** Covid Control helpline number -104

**Quarantine:** Self/Home Quarantine.

**Monitoring health of stakeholders:** Regular Thermal Scanning and checking Symptoms.

**Visitors room:** UV protected rooms.

**Lodging:** Rooms with separate bathrooms.

**ASSUMPTIONS:**

- Institution has enough resources for the sanitization, screening, testing, isolation and the treatment of the potential/already positive persons.
- Institute can accommodate large numbers of stakeholders, teaching and non-teaching staff and other guests/persons.
- Proper screening facilities.
- Large enough mess/cafeteria area and seating capacity to follow the social distancing guidelines.
- Very less movement from outside of the campus.
- Sufficient staff/faculty member to conduct the classes in the shift wise pattern.
- Residential medical facilities.

Following are the safety guidelines and advisories that must follow in the given campus area:

1. General protocols for Administrative Operations
2. Sanitizations on campus
3. Operations of Hostel, Mess and Canteen
4. Transportation
5. Testing and Isolation

**General protocols for administrative operations:-**

- Everyone should wear a face mask as it will impose positive impacts on stakeholders and staff.
- Thermal scanning of individuals for recording body temperature must be done by security staff while entering the campus.
- Physical distancing between individuals should be maintained in all places inside the campus.
- Everyone must sanitize their hand periodically by washing with soap or with alcohol based sanitizer, also foot operated sanitizer stands should be placed building wise.
- All must maintain good personal hygiene such as avoiding spitting and littering in public places, covering their mouth while Coughing or sneezing.
- Large gatherings of people for meetings or any other purpose will not be there inside campus anywhere.
- Lunch timing may be staggered and group lunch will not be there.
- There will not be any permission for going outside the campus.
- All stationary materials will be available within the campus to avoid the risk of stakeholders to go outside the campus.

**Sanitizations on campus:**

- There must be 2-3 teams for sanitizing the campus, buildings, classrooms, etc.

- Touch points such as entrance handles, tables, restroom stall handles/doors are being cleaned multiple times a day by the sanitizing teams.
- Common areas like canteen, mess, parks with the hostel also sanitized multiple times daily.
- Also the toilet, bathrooms will be cleaned by a highly disinfection solution.

**Operations of Hostel, Mess and Canteen:**

- No visitors or relatives will be allowed in the stakeholders' residence without the permission of the head department.
- No outside student is allowed to enter hostel premises for any purpose.
- Only for urgent or necessary needs the student will allow outside the room or guard will help.
- All the stakeholders living in the hostel are provided with the separate room.
- Healthy and nutritious food will be served to stakeholders to make their immunity stronger.

**TRANSPORTATION**

- Ensure less movement within or outside the campus as much as possible.
- Stakeholders, Staff and other persons coming to college should be advised to use the college's own transportation facilities for the to-and-fro movement from the institute.
- People having facilities of their own transport medium should use their own vehicles.
- Colleges should arrange transportation facilities for the people who travel from distant places to the college on a daily basis so that they don't have to use public transportation systems or as much less as possible.
- Before entering in the college bus, each person should be screened to prevent any possibilities of spreading covid-19
- Any suspicious person having symptoms of corona must not be allowed inside the bus.

**Testing and Isolation:**

- The stakeholders or staff coming from outstation must be quarantined for 14 days in the isolation area inside the campus.
- Covid care committee will be there inside the campus for the care of quarantined people.
- Highly nutritious food will be provided for the prevention of any symptoms.
- Regular exercise will be taken by covid care committee for maintaining good health of the isolated peoples.

**4.2 Concept Selection**

Having outlined client desires and alternative necessities and generated multiple ideas (i.e., Concept Generation), the team should select a little set of ideas (usually simply one) to develop additional. It consists of three steps,(1)screening,(2)comparison and (3) decision making.

**4.2.1 Concept Screening**

In this step comparison between each concept is done. The purpose of comparison is to gauge the relative benefits and drawbacks of every construct. The concepts are compared on the basis of criteria and on a datum concept. The criterias are identified on the basis of requirements and needs identified in the problem. The matrix is created and concepts are compared to the chosen reference concept. Typically, a three-level scale is used: better (+), worse (-), or about the same (0).The net score is calculated and decisions are made on further developments.

<b>CONCEPTS</b>					
<b>SELECTION CRITERIA</b>	<b>CONCEPT 1</b>	<b>CONCEPT 2 (REFERENCE)</b>	<b>CONCEPT 3</b>	<b>CONCEPT 4</b>	<b>CONCEPT 5</b>
SANITIZATION	-	0	-	+	0
COVID TESTING	+	0	0	0	0
QUARANTINE	+	0	0	0	0
MONITORING HEALTH OF STUDENTS	0	0	-	-	+
DATA COLLECTION	0	0	0	0	-
LODGING	+	0	-	-	0
SUM + 'S	3	0	2	1	1
SUM 0'S	2	6	1	3	4
SUM - 'S	1	0	3	2	1

NET SCORE	2	0	-1	-1	0
RANK	2	1	3	4	5
CONTINUE?	YES	YES	YES	COMBINE	COMBINE

Table : 4.1 Concept Screening

#### 4.2.2 Concept Scoring

After all the design concepts are prepared, concept scoring is established to form a qualitative hierarchy of the concepts wherein the concepts are weighted as percentage according to the weightage it posses in treating infections and is rated according to each selection criteria, finally the weighted score for several concepts are calculated and ranked according to the final scores.

With the help of weighted scores further development of one particular concept is chosen which is to be implemented. One of the simplest ways to tackle a style drawback may be a smart abstract thought grading whereby some ways square measure complementary et al might give contradictory results. A comparison of concept selection in concept scoring and axiomatic style ways[26].

CONCEPT SCORING									
Selection criteria	Concepts								
	Weight	Concept 1		Concept 2		Concept 3		Concept 4	
		Rating	Weighted score						
Sanitisation	20%	3	0.6	4	0.8	2	0.4	5	1
COVID testing	30%	5	1.5	3	0.9	4	1.2	2	0.6
Quarantine	20%	4	0.8	3	0.6	2	0.4	3	0.6
Monitoring health of students	20%	4	0.8	4	0.8	5	1	3	0.6
Data collection	5%	3	0.15	4	0.2	2	0.1	3	0.15
Lodging	5%	5	0.25	4	0.2	5	0.25	4	0.2
	Total score	4.1		3.5		3.35		3.15	
	Rank	1		2		3		4	
	Continue?	Develop		No		No		No	

Table : 4.2 Concept Scoring

#### 5 Conclusions:

In this paper, various ways are discussed which are expected to be useful for the effective management and securing the residential premises during the Covid-19 pandemic.

The statements related to requirements, difficulties faced and availability of essential items were taken from the stakeholders which in this case were the teaching/non-teaching staffs, stakeholders& their relatives and other visitors. Based upon their responses raw data was gathered and after interpreting that data with the help of Hierarchy and concept screening process we were able to classify most and least important requirements which need to be satisfied and there level of requirements.

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