

**Design the space provided for the pastry department at
ITS campus.**

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<p>Abstract</p> <p>Shorty we should be moving to a new ITS campus and I have always wanted to contribute to something of this sort and that is why I chose this topic. If this project is done in the right way involving all the necessary people in it I think that together as one team we will be able to do a good and efficient design.</p> <p>My motivation to do this came from the lack of space we currently have and also because there is a huge gap in between our kitchens and the kitchens out there in the industry. Unfortunately our kitchens are very out dated however with this move to the new campus we could design the best and use the latest in technology.</p> <p>When I was doing my research I found it extremely difficult to find articles and papers on pastry kitchen design, actually I found nothing but then I was instructed to do the kitchen design in general and then apply the design concepts to the pastry department through my knowledge and with the help of other professionals working in the pastry.</p> <p>In this thesis the reader will be able to go through the process that a person needs to go through when deciding to open a pastry related school. Starting from the actual kitchen design specs in general to modern pastry trends and modern pedagogy methods used nowadays to motivate the students.</p> <p>The questionnaires and interviews with the students and professional personnel were very fruitful and helped me a lot in the process all the reviews can also be found in this thesis.</p>	
<p>Keywords Kitchen design, Pastry department, Kitchens, Modern, Questionnaire, Interviews, Pedagogy, Trends.</p>	

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1 Introduction

When I entered ITS as a lecturer I was asked by the management whether I would like to start teaching pastry instead of kitchen, I was not that happy about their request because I used to prefer the kitchen however I accepted the challenge and for the first year I was shadowing two other lecturers during their pastry lessons. From then on I have all my lessons within the pastry. At first it was a bit difficult for me however when I got used to it it was fun and now I can say that I do actually like it a lot being in the pastry as there is a very high level of creativity and a lot of different skills are used. At present I am one of three members who do teach pastry at ITS but unfortunately due to logistics, lack of space and lack of equipment there is no actual pastry department and in order to get our modules delivered in the best possible way we do struggle a lot and we never manage to perform the best we can. I have been to various schools abroad on Erasmus project and have seen that they have a lot of different concepts compared to what we have locally, the kitchens are fully equipped and their layouts are to encourage student's participation and motivation during the lessons. The above reasons is what made me chose this topic for my thesis as I believe that I together with the suggestions from my other colleagues we can re design the pastry department in the best possible way and have all the best available resources to teach our students in the best possible way. I would like to be working in a school where everybody envisages being there and ITS would be placed on the world map of one of the top institutions in catering studies. By doing this thesis I think that yes the pastry will be one of the top pastry departments in any catering school in the world if the suggestions will be taken in by the management and the designs will be implemented.

When I was looking at the floor plans of the new campus I have seen that all the second floor is allocated to the pastry which is quiet massive as a space. However if it is not designed in the best possible way it will be even worst then what we currently have that is also why I would like to take this challenge in designing all this space. The current setups have to be forgotten completely and start thinking about something completely new like for example the pastry production class must be separated from the bakery (currently it is one class) having separate kitchens for gluten free products and much more. I have to do research about what top institutions in the world are doing and what sort of kitchen designs they are using and try to come out with a better design to deliver in the best possible way and motivate the students that we will get in the future which I believe will be even more challenging as they do not get motivated that easily.

I will start my thesis by doing a questionnaire amongst present students at ITS to get some feedback from them about what motivates them in their studies, what they would like to find in their kitchens and what are their preferred ways of learning. I will also be doing themed interviews with professional personnel teaching at ITS to hear about their ideas how they would like our department to be like in the future. Then with all this information in hand I can start thinking about how I can design the pastry department in the best possible way.

This thesis is mainly product oriented since I am coming from a practical oriented industry and I feel more comfortable when I am working and doing something hands on however there will also be an element of research in it as well to come out with the best for this pastry department plan. Designing different types of kitchens involve different types of layouts, if it is a small ala carte kitchen it is one thing and if it is a large production kitchen it is something completely different. A school kitchen is also something completely different as in a school the kitchens need to be designed to accommodate the student learning purposes. From demonstration kitchens to individual classes, kitchen theaters and production classes catering for the restaurants, always keeping in mind the the best way to reach our customers and their needs (students).

When i was looking for information about kitchen design I found out that it is a bit of a problem to find text books and articles related to kitchen design most probably because it is a buisness where you sub contract a person to design the space for you with all the nessesary needs. However with small bits and pieces of information, my own experience, professional interviews and student survays i will be able to collect all the nessesary information.

As also mentioned above the objectives of this thesis will be the following list:

- Establishing what is needed in order to make a professional pastry kitchen
- Establishing what modern trends are used in VET with regards to pedagogy.
- Identifying modern trends used in the pastry department
- Analysing the local legislation with regards to kitchen design.
- Establishing what is needed to design and do a food allergens kitchen.
- Segregating the space provided for the pastry department into separate required kitchen.
- Designing all the kitchens in the best possible way according to the research obtained in the thesis.
- Identifying a list of large equipment which is needed in each kitchen.

Although my thesis is about kitchen design however i had to use other sources and key concepts in order to come out with the best possible final result. I will be speaking about modern pedagogy methods, as it is useless designing spaces and then equipping them with dated teaching resources. Something else which i will be speaking about is modern pastry trends, when designing the space provided one has to be aware of the modern equipment in the market to do modern trends. Since these kitchens will be supplying food to the general public it has to adhere to food safety legislations and in my reaserch i will also be going trough local legislation on what is needed to do a professional kitchen. One other very important part of reaserch i will be using is the use of questionnaires to students at the institute regarding the current situation and what they would like to find in their future school to reach their expectations. Interviews with professional personell working in the industry and at the institute will also give me also more ideas from their own perspective.

The in-Text Citations and references in this thesis are listed using the APA (6th edition) embedded in Office World 2013

2 Kitchen design

(Foskett, 2011)

When designing a kitchen in general one has to keep in mind the following aspects mentioned below to design a successful environment to work in. Size of the establishment & capacity, if the establishment is quite large therefore it will have quite a large number of customers you need different types of setups and equipment in the kitchen. You cannot have a 300 cover restaurant and then you have a 2 meter kitchen it will be practically impossible. The type of service which is going to be offered in the establishment will also differ in the design whether it is a self-service cafeteria to a fine dining restaurant the spaces needs to be amended to accommodate that type of operation. Capital available, when investing in an establishment everybody has got budgets that need to be adhered to and this will either limit you to choose what you can use or else it will give you a free hand and you can purchase whatever is needed. However if there are limited funds available the ideal thing is to still design enough space to accommodate the required equipment, a prioritised list of equipment should be done and as time goes by all the necessary equipment is purchased gradually. Labour and their skill levels, the type of people that the company would like to employ will also influence the design as well. Although most employers would want the best possible employees however that will require a certain budget which is not always feasible. This will have an effect on the technology and equipment to be installed. Having high tech equipment will require highly skilled personnel to be able to operate it.

Use of prepared convenience foods, if the owner / chef intends to buy part prepared or completely prepared convenience products this will influence the type of equipment needed and the space design overall. Certain factors will have to be determined in advance these are just a few of them; will sweets and pastries be made on the premises? Will there be a need for a larder or butcher section? Will the bread be made in house? Will fresh or frozen food, or a combination of both be used? If so is a veg preparation section required? Type of equipment available in the market Nowadays it is not like it used to be before if a piece of equipment is not available locally you can go to fairs abroad displaying catering equipment and import your own equipment directly. Equipment is a crucial part in kitchen efficiency overall as a good piece of equipment can produce more work in less time than if done manually. Type of menu chosen will require different designs. If an establishment is doing buffets the kitchen has to be designed in order to accommodate bulk preparation whilst if it is an ala carte restaurant you need equipment that caters for individual portions of food. Hygiene and food safety legislation compatibility, the law will require to design the space in compliance with the set regulations so as to be safe for both employees and also

clients. If it is a large production you have to put in place a food safety management system like for example HACCP. Legislation also goes deep into how much light needs to be provided in the kitchen and also ventilation provided in the kitchen.

Design and décor, although the kitchen most of the time is not visible to the client however if the area is nicely designed and decorated it will increase the staff morale and reduce staff turnover. Nowadays it is also highly in fashion to have open kitchen concept whereby the clients can see whatever is happening in the kitchen through glass. This will keep employees on edge as everybody is watching them and the clients will be able to appreciate that their food is being prepared there and then in front of them. If the kitchen is visible from the front of house therefore it has to be as nicely decorated and clean as the restaurant itself. Multi usage requirements, it can be that an establishment is on a daily basis working with an ala carte menu however if the need arises he will also be doing cocktail reception in a private room available in the restaurant. Therefore the kitchen has to be designed to accommodate both operations at the same time without any problems.

After all the above things have been taken into consideration and all the requirements for that establishment have been noted then you can start with actually designing the space. Therefore it encompasses a huge amount of planning and research in order to do something successful.

2.1 The theory behind kitchen design

Kitchens must be designed that they can easily be managed and managers must have easy access to areas under their control that is why generally a section in a kitchen is always an open space to allow managers to supervise and staff to communicate amongst each other as communication is a crucial part in the kitchen. With regards to space every employee ideally requires an average of approximately 4.2m² of space in a kitchen less space could be dangerous as there will be close proximity to equipment and other staff leading to accidents. The cooking area should be well lit with a minimum lighting of 20 to 38 lumens per square foot. Less light will lead to lack of motivation in staff, lower productions and also higher risk of accidents. Suitable ventilation to remove heat, fumes and smells and replace it with fresh air are also a must to be able to work in a healthy environment. With regards to working sections different menus and size of establishments will require different styles of setups. A straight line setup will be more suitable for a small restaurant whereby one person can handle all the work, whilst an island setup will be more feasible in larger operations where more people are working in the same area at the same time (Neufert, 2002). Actual worktops have to be adequate in size and should be designed so that the food handler has all the necessary tools at hand. Product work flow

is also something very important especially in larger operations. Each section should be divided into high risk products and contaminated products and they should never cross each other as a risk of food poisoning will arise. Ancillary areas are also a very important part in kitchen design, close to the receiving area there should be the de boxing & storage facilities. Waste management should be taken care of very carefully and stored away from food preparation areas in lockable spaces to avoid contamination and unpleasant odours. Kitchens can be divided into sections and these must be based on the food processes,

For example:

- Dry areas – for storage
- Wet areas – for fish, vegetable, butchery and cold preparation's
- Hot wet areas – for boiling, poaching and steaming.
- Hot dry areas – for frying, roasting and grilling.
- Dirty areas – for refuse, pot cleaning and plate wash.

The kitchen operation must work as a system and it is advisable to site items of equipment used for specific functions together. This will help increase efficiency and avoid shortcuts. Wash hand basins must be sited strategically to encourage frequent hand washing in all food preparation areas. (Foskett, 2011)

2.2 Kitchen design from a Pastry perspective

For this section I found no information whatsoever on neither books nor on the internet and articles therefore I will be doing this section using my own experience in this area. As for the general theory of design applies for the pastry department same as for the kitchen, however the pastry is a completely different department in the kitchen and requires a completely different structure to be able to work efficiently. These are some of the different sub divisions in a pastry; main cooking area, dough preparation area, creams area, chocolate room, decorating room, cake decoration, ice cream room and bakery. In these different areas specific equipment is used and has to be separated from others for both healthy and safety reasons. Since in the pastry we are constantly using highly perishable products, temperatures have to be controlled in order to maintain a safe environment. That is why there is segregation in between the hot and cold section of the pastry. Ice cream is also something which is very delicate and therefore it needs to be prepared in a separate room apart from specific tools which are used for a particular job only. Something which is also drastically increasing if food allergens main ones being lactose and gluten intolerance, when designing a new kitchen ideally one has to keep in mind and design an enclosed space within the kitchen whereby these foods can be produced safely without too much hassle of having allergens in the food room, this will be further discussed later on in section 2.4.

2.3 Local Legislation on Kitchen Design

In this section again there is no direct reference in the local legislation in with regards to the pastry or confectionary however the same laws as for a normal kitchen also apply to my subject. According to the Catering establishment regulations (Kingswell, 2008) these are some points that are legally required in order to operate in a professional catering kitchen.

All kitchen should be kept clean at all time using 2 main methods, that of cleaning as you go and more thorough cleaning with a cleaning schedule including frequency of use, chemicals used and how the piece of equipment should be cleaned. Colour coding is also recommended for cleaning equipment and they should be stored away from food. Kitchens should be maintained and in good repair at all time this include no chipped floor and wall tiles, no flaking paint, no damp walls or any other unhygienic conditions.

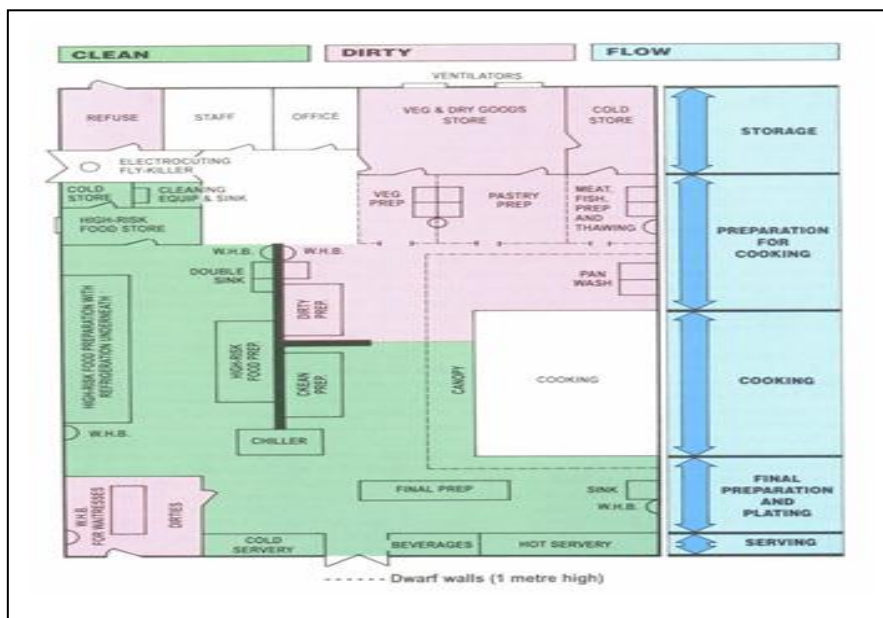


Figure 1. Plan of a Kitchen Indicating process separations (Sprenger, 1999)

The layout of the kitchen itself should permit easy cleaning and minimizes air-borne contamination, and providing enough working space for staff to work safely. The layout should also separate different processes of the food production from clean to dirty processes. Where appropriate also the rooms should be temperature controlled to maintain a better environment for the food. This picture perfectly shows the flow that all kitchens should have in order to separate the different processes and work more efficiently to minimize cross contamination.

Table 1. On this same book there is also this very interesting chart suggesting the area needed for the amount of people that a restaurant will be catering for. (Kingswell, 2008)

No. of persons to be served	Meal Type	Cooking Area (m ²)	Dry Storage (m ²)	Vegetables Storage (m ²)	Chilled Storage 0-3°C (m ²)	Frozen Storage -18°C (m ²)
20		7-8 minimum	Kitchen cupboards		Domestic refrigerator	
50	A	15-20	Kitchen Cupboards		1	1
	B					1.5
100	A	20-30	6	4	1.5	1.5
	B			Optional		3
150	A	30-35	8	6	2.5	2.5-3
	B			Optional		4.5-6

A = Conventional cooking & B = Pre-cooked Meals

An adequate number of wash hand basins should be made available and located strategically to encourage employees to wash hands, they should have both hot and cold water (ideally 50°C) and ideally foot or knee operated. Next to the WHB one should have anti-bacterial soap dispensers and drying facilities like disposable kitchen rolls or blowers. The height of a kitchen from floor to ceiling should be that of 2.74m to allow adequate ventilation of air. Above equipment generating heat, vapour, fumes or odours a canopy should be installed to extract all the vapours with an overhang of 250-300mm from the front or back of appliance and 150mm from the side. Material used for canopies should be stainless steel and should be fitted with removable filters to be able to clean the grease regularly. The amount of air extracted from the kitchen should be re-introduced either through a fresh air duct or introduced naturally through windows fitted with insect screens. Ambient temperature in a kitchen should not exceed the 28°C at any time during the operation. Food rooms are to have adequate lighting whether it is natural or artificial food preparation areas should have a 500 lux lighting intensities. As a general guide a 20w florescent fitting per meter squared will give 400 lux. Light fittings used above food preparation areas should be covered with shatter proof glass to protect the food. As for drainage facilities ideally they should be out of the food rooms to avoid contamination in case of back flows. Every establishment has to provide employees with changing facilities and lockers so they can change to their work cloths and a wash hand basin needs to be there in the changing room/ ante-room. Cleaning and other chemicals have to be stored in a separate room and not in the food room to avoid contamination.

Floors and walls have to be made from impervious material and something which can be cleaned easily, the least crevices there is better to avoid bacterial growth in grouting. The material used has also got to be non-slip for flooring. Ceilings and overhead fixtures have

to be made from materials that prevent accumulation of dirt. If false ceilings are used there has to be access points left for both maintenance and also to do pest control? If there are any windows in the food room they have to be made of non-porous material and opened only in the case that no contamination can occur from outside. If windows are to be opened they have to be fitted with easily removable insect screens so they can be washed regularly. Doors in a kitchen should also be made of a non-porous material and something which can easily be cleaned and disinfected. Work tops have to be maintained in good condition, smooth and washable, this implies to materials such as marble or stainless steel. Wood can only be used for dough products and also has to be well maintained and cleaned with no rough edges. Sinks have to be available in the kitchen for washing up of pots and pans and should have plenty of space for drain boards to air dry equipment on. On the other hand if any fruit and vegetables need to get washed it has to be washed in a separate sink used only for vegetables so as to avoid chemical contamination.

Equipment used in a kitchen has to be made of a material that is easy to clean and also well maintained, most of the equipment is made from either stainless steel, aluminium food grade plastic and ceramic. Equipment must be regularly inspected and if found to be damaged such that it inhibits cleaning or poses a physical contamination hazard, should not be used any longer. Care needs to be taken when designing kitchens with heavy equipment as to facilitate cleaning of the equipment themselves, ideally they should be fixed with wheels for easier moving to be cleaned well. As for fridges, freezers, hot cupboards and ovens have to be fixed with a temperature probe to be able to monitor temperatures easier.

Food waste should never be allowed to accumulate in the food room therefore it should be removed as frequently as possible. Refuse bins have to be fitted with tight fitting lids, kept covered at all time and lids have to be foot operated. Any stored refuse waiting for the final disposal has to be stored in a separate room away from the food room. Refuse storage rooms have to be well maintained and washed regularly and ideally room has to be air conditioned to maintain lower temperatures and minimizing the risk of insect infestations. Water supplies for kitchens has to be with just potable water and sometimes it also has to be treated and softened once again to be used for specific uses.

2.3.1 International legislation relating to pastry

The closest legislation to pastry I managed to find is the state of Oregon food safety division 21 related to bakeries. Although the bakery is just a very small part of the total pastry operation however I found some relevant information. As for bread it states the size that they need to be ranging from 250g to 750g in weight, it also gives specification to the loaf

pan sizes. Another section is about labelling of both packed and un-packed bread products. (Oregon, 2013)

2.4 What is needed to do a food allergen kitchen (gluten free)

A food allergy is a potentially serious response to consuming certain foods or food additives. Allergic persons reaction can occur within minutes or hours, and symptoms can range from mild to life threatening. Allergic reactions can include hives, flushed skin or rash, tingling or itchy sensation in the mouth, face, tongue, or lip swelling, vomiting and/or diarrhea, abdominal cramps, coughing or wheezing, dizziness, swelling of the throat and vocal cords, and difficulty breathing. (Division, 2012)

As for allergens there is a list of eight foods that account for 90% of all food-allergic reactions, these are; milk and milk products, eggs, peanuts, tree nuts (e.g. Walnuts, almonds, pistachios, hazelnuts, cashew & pecans), fish, shell fish, Wheat and soy. (Division, 2012)

As mentioned earlier on nowadays we are getting quiet a lot of requests by allergenic persons, which cannot be taken for granted as it is something quite serious. Working in an area where there might be wheat particles in the air it can be enough to contaminate the food and cause a reaction to the person consuming the food. That is why it is something very serious and needs to be taken into consideration at the designing stage of a new project. There is a complete difference from a celiac to a gluten intolerant, a celiac is more susceptible to anything even the smallest particle in the food will send the person to hospital. Whilst a gluten intolerant will have a reaction but most of the time it is not severe.

In an ideal environment where space is enough one should have a separate kitchen completely sectioned form the rest of the kitchen where any allergenic foods can be prepared, cooked, packed and stored safely in it. Next to the kitchen one should have a changing room where staff need to change before they go in the kitchen to prepare anything in it, to avoid the risk of contaminating the space with contaminated cloths. Everyone has to be well informed about the importance and severity of the case in which the clients will be at if anything during the process is compromised by anyone involved so clear labels have to be shown upon entry to this kitchen (Levin, 2012)

2.5 Modern Pastry Trends

“Menu tracking firms show that pastry chefs are experimenting with new dessert forms and flavours and merging the new with the old to bring unique desserts on tables” (Brandinsight, 2015)

A major pastry product producer did a survey all over the world with 6400 consumers to determine their likes and dislikes when shopping for pastry products. After they evaluated this information they came up with the top 10 future trends in pastry. (Puratos, 2011)

Trend 1 is Food utopia or Apocalypse? Whereby customers are showing their concerns about whether products are artificial or unhealthy for their own health. This is showing that nowadays consumers are more concerned in what they eat vis-à-vis their health.

Trend 2 is overall quality perception, quality in food is no longer seen as just the quality of the final product but consumers want to see the process of how that product arrived at the point of sale, with full transparencies from start to finish. Supermarkets and large establishments have to prove themselves even more than small and authentic businesses.

Trend 3 is marketing or sales? The baking of, people will be more on the look out for authentic products rather than mass produced ones and that will be a way of marketing the product because it is something which can only be purchased for that particular bakery or restaurant.

Trend 4 is local or global? In a world where globalisation is taking over people are struggling to find a well defined identity. Local food culture will become a way of self expression, future tourists will want to experience typical local food in its origin so it is not just dining but it is also an experience.

Trend 5 is promoting symbols or ingredients? Certain foods are associated with particular places like for example French Macarons in Paris. Every place has got its particular ingredient or dish and future clients will be interested in having that unique experience of dining at the actual source of origin, to have an authentic experience.

Trend 6 is tradition or innovation? Consumers clearly show a desire for new concepts and innovative ideas however they also cherish traditional and classical flavours. Therefore the future of the pastry work has to go hand in hand with the traditional and classical pastry items but twisted slightly to give that futuristic look. “offering common desserts like tiramisu as playful push pops that both kids and adults alike will enjoy” (Leonard, 2012)

Trend 7 is meal mobility, future customers will be more inclined towards the ‘unstructured meal reality’ which means that due to increasing time at work or on the road, food needs to become more portable and easy to eat whilst still managing to the work required.

Trend 8 is small pleasures, big health, consumers seem to change their expectations about what is healthy based on the size, volume, shape and portion of the food product. Smaller portions will be more attractive to future consumers and at the same time since

they come in smaller portions if they want they can savour different products at the same time if they wish to do so.

Trend 9 is that authentic Bakery feeling, in the future consumer will want that the products they purchase have that unique smell, that home-made look and feel, the fresh image, the human touch and a tradition approach to how it is made and presented to them.

Trend 10 is specialized or super bakeries? Frenchised concepts that make a superstar out of one bakery product tap into the need to indulge and customize. Customers will love to walk out of a store or restaurant with the feeling that they have their own personal bakery product which was tailor made for their likes.

All these trends are showing that the future customers will be more on the lookout for more personalised, authentic, healthier, convenient and classical flavours twisted in a modern way. According to another trend analyst house-made Artisanal Ice cream will be a major trend in the near future. (Association, 2015) Having also low calorific Ice creams and different flavours to amaze all the likes of customers.

3 Pedagogy in Vocational Education & Training

Vocational pedagogy is most of the time under researched, under theorised and seen as an inferior type of education compared to academic education, however it provides the society with the required skilled persons to offer their services.

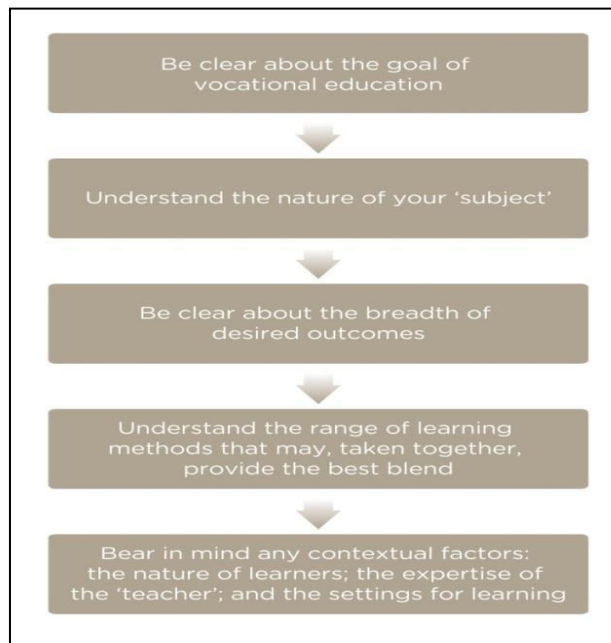


Figure 2. Before planning to design any module or course in VET one has to answer and keep in mind the following fundamental points in order to design a better end product. (Lucas, 2014)

There is a concept called 'signature pedagogy' which was first mentioned by Shulman in 2005. In my opinion it makes a lot of sense as the class environment will reflect a large percentage of the future career of the professionals, learning at that time same as the family upbringing in their children.

'Signature pedagogies make a difference. They form habits of the mind, habits of the hand and habits of the heart. As Erikson observed in the context of nurseries, signature pedagogies prefigure the culture of professional work and provide the early socialisation into the practices and values of a field. Whether in a lecture hall or a lab, in a design studio or a clinical setting, the way we teach will shape how professionals behave...' (Shulman, 2005)

The list below is indicative of those vocational learning methods which. The majority are broadly 'learning by doing' or 'experiential', though many combine reflection, feedback and theory. (B. Lucas et al., 2012)

- Learning by watching
- Learning by imitating
- Learning by practising ('trial and error')
- Learning through feedback
- Learning through conversation
- Learning by teaching and helping
- Learning by real-world problem-solving
- Learning through enquiry
- Learning by thinking critically and producing knowledge.
- Learning by listening, transcribing and remembering
- Learning by drafting and sketching
- Learning by reflecting
- Learning on the fly (on the job learning)
- Learning by being coached
- Learning by competing
- Learning through virtual environments
- Learning through simulation and role play
- Learning through games

Very few of the above mentioned list cannot be applied in our context, but all the rest will definitely contribute to a great teaching and learning experience for our students leading to a signature pedagogy as mentioned above.

3.1 Modern pedagogy methods

Pedagogy is something which is relatively quiet new as also mentioned in the previous section however research in this topic has shown a lot of improvement and introduction of new elements in this concept. Below is a diagram showing modern pedagogy methods which need to be used in order to get better engagement and results from the students.

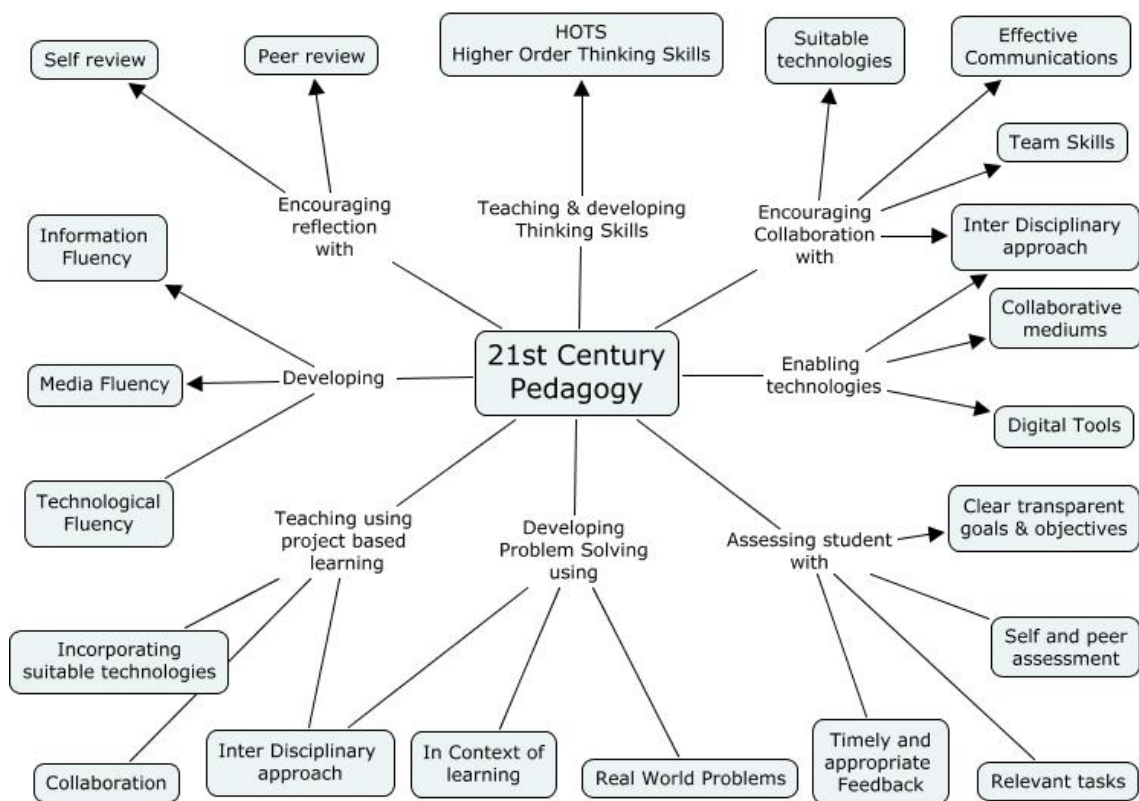


Figure 3. Modern pedagogy methods. (ThechThought Staff, 2015)

I decided to use the above image as it perfectly shows us all the steps that need to be used in modern day pedagogy including all the aspects encompassing it.

Modern quality learning is a combination of different aspects including. (Osborne, 2013) Personalised learning nobody is the same and has got different learning abilities, therefore it is not something generic education has to be tailor made for the individual that is why different learning methods have to be used as mentioned above. Socially constructed learning when working in teams, together to achieve one goal students will learn a lot from that experience as they are all sharing their part within the group. Differentiated learning is another aspect of modern teaching as every individual brings his background of information therefore the educational package has to be tailor made. Learning that is initiated by students themselves is another aspect and this can be achieved by good preparation by the lecturer to encourage discussion in class and raise certain topics which then will be taken over by the student. Learning by doing in our context this works a lot all the time. In theory class it is very difficult to explain a recipe precisely however if the lecturer is explaining it whilst doing it the students will learn much more and final end product much better.

3.2 Modern Learning Environments

Before teaching used to be done in a 'Factory-style' learning (where all students learn the same things, at the same time, in lock-step fashion) but studies about how the brain works have shown that contrary. Modern learning environments have to be as follows:

(Osborne, 2013)

Flexibility in the structure, giving the ability to the lecturer to amalgamate two classes to join each other for a workshop or splitting the class into different groups and teams for different workshops.

Openness, modern learning environments have fewer walls and more glass to give a sense of openness to both the outside and also the common areas in the school. Modern schools also use the idea of a hub which is a central teaching and learning space that can either be shared by several classes at one go or other classes can observe the learning of other classes at the same time without disruption. This also provides access to what other students in other levels are doing so that learning and teaching can be enhanced as a whole experience. Open spaces will also support teacher learning by creating a more collaborative community. Having access to teaching practices of your colleagues to model and to be modelled to, will support the development of effective teaching practice far more than teaching in an isolated, private space.

Access to resources, typically a learning hub is surrounded by breakout spaces allowing for a wide range of activities, such as reading area, team work space, presentation areas, reflection areas and project areas. Accessibility to technology has to be also provided so learners can use it for whatever they need it.

3.3 The use of technology to enhance teaching in VET

The term technology in a classroom encompasses a very wide range of products from low-tech items like pencil, paper and chalk board up to modern presentation tools, high-tech tablets, online conferencing tools and much more. New technology allows us to do things that could have never been done before. The effective use of technology in a system should not be used as something extra but it should be integrated into the every day work as a norm in all key learning areas. Michael Fullan states that "Pedagogy is the driver, technology is the accelerator" showing us that they cannot go without each other and if used properly it will accelerate the learning process for our students. It is crucial for lecturers to allow students to explore and navigate within the provided technology sources and then share their experiences with their class mates as this will be very beneficiary for the whole group. (Chalich, 2015).

Keeping up with the fast pace of technological advancements can be quite hard as it is something which is constantly evolving. Effective learning and teaching in any environment requires good design management and pedagogy. It is useless trying to put a boring test on an iPad unless the technology redefines and transforms the learning experience.

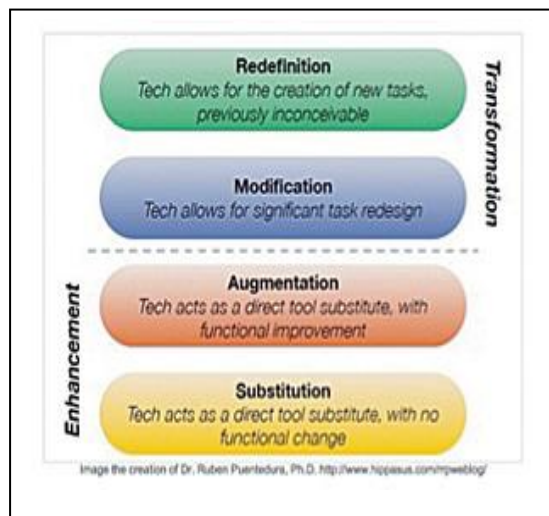


Figure 4. The 4 stages of the SAMR model. (Chalich, 2015)

The SAMR model was developed in order to help lecturers to design, develop and integrate learning technologies and achieve better results for students. This four leveled stages of technology integration that increases in complexity and effect (from a simple substitution from a paper to a tablet to a more complex redefinition where it would be impossible to do if not using that technology).

So using technology is not just about uploading tests or notes on a virtual learning environment only, that will be just augmentation. Using technology is when you create softwares or use available software that can and will involve and motivate students to learn more and encourage them to do research together with their peers. An example of this would be a virtual learning environment where you upload all the necessary notes, videos recorded during practical and theory classes and creating forums where students can discuss the work done or that needs to be done. Having it available 24/7 so students can study or participate at their leisure.

Other ways in which technology can help is through; (Washington, 2013) Online collaboration tools, such as Google Apps which allows students and lecturers to share material and edit them in real time and projecting them in front to their class. This will give students a collaborative platform where they can work on with their peers and lecturers. Presentation softwares such as Prezi and Powerpoint enable lecturers to embed all the necessary material related. Tablets can be linked to projectors and the cloud easing communication by students and lecturers. Course management tools such as Moodle

allows lecturers to upload all the relevant material, upload markings, give feedback in a timely manner and creating space for discussion whichi as seen previously is very fruitfull for students. Clickers and smartphones are a quick and easy way to do survays in class. Lecture-capture tools allow lecturers to record lectures directly trough their computers and then uploading it so students can re-watch it any time they need.

4 Conducting the development process.

4.1 Questionnaire analysis.

When I decided on the thesis topic I will be doing re designing the new pastry department at our institute I thought about giving out a questionnaire to my current students and so I did. I drafted a sample of the survey and presented it to my tutor, he helped me in improving it and then I finalised it. I used Question Pro online survey tool to do this task, and distributed it to my students by e-mail and also through social media. At first I thought that I will get very limited feedback however I was surprised with all the good feedback that the students gave me. Within I week after distributing it I managed to get 74% completion amounting to 72 surveys completed. The questionnaire had eleven questions starting from generic questions than going onto more specific questions. A copy of the results achieved from the survey can be found in the appendices. However below is the report of the findings from this task.

Question 1; out of the students who responded for this survey 25 of them where at the institute for two years, another 25 where there for three years and 16of them where there for four years. This shows that they had quiet some experience with the situation at the institute and can give valuable feedback.

Question 2; this question was regarding the overall grading of the institutes kitchens. Only two of them said that they are excellent, 41 students said that it is good and 28 said that it is fair. This is a bit worrying although most of them said that it is good however it is not excellent. This further continues to justify the need for this task to develop and provide an excellent learning environment for our students at the new campus.

Question 3; this question was about their preferred area specialization at work in an industrial kitchen. 41 of them said that it would be in the kitchen, 33 of them said that they would like to continue in the pastry and another 5 said that they would like to continue in a bakery. That almost gives an equal distribution amongst students in the kitchen and pastry, showing us that we need to further enhance programs of studies in the pastry department.

Question 4; this question asked the students whether they would prefare if the theoritical lessons are given at the same time of an individual practical session in the kitchen. It was no surprise that most of the students (63in total) responded that thay woud definitely prefare that. Most of the relays said that theory in a class can be a bit boring, tiring and

difficult for some students to conceptualize what the lecturer is saying with just explanation. On the other hand they all thought that visually seeing something being done in front of them whilst explaining the theory behind it will motivate them and they will be able to understand much easier. One particular comment struck me and I think it is very relevant.

“Theoretical concepts can be better explained and remembered by the students if given demonstration. Also cooking should be fun and inspiring. Bounding students to the classroom does not motivate the lesser intelligent to keep up even though they could be very talented in the kitchen”

Question 5; this question was about the use of monitors in kitchens to display recipes and any other information related to the subject. 48 of them said that it will help them, 7 said that it won't and 17 said that it does not make any difference for them. In their replies one of them said that he would prefer a hard copy so he can scribe any additional notes, and another comment said it would be a great idea as they can also go through the internet to search for ideas as well. Someone also mentioned that good explanation is crucial and then the technology will be there to further assist them during the process.

Question 6; this question asked the students whether they would prefer if the bakery class would be separated from the pastry class to produce a better quality product. 52 of them said yes they would prefer them separated, one said that he disagrees and 19 said that it does not make any difference. This again shows us that the majority would prefer that the classes are separated in order to achieve better quality.

Question 7; this was an open question asking students to what other pastry related subjects they would like incorporated in their studies.

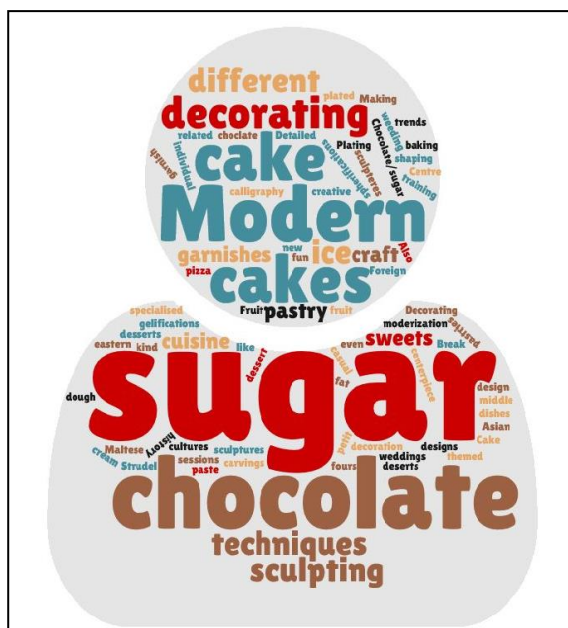


Figure 5. World cloud for question 7

I decided to put all the reply in a word cloud as it easily describes what students want in an instant. As can be seen most students would like the inclusion of more chocolate and sugar show pieces in their modules. Some other items which were mentioned were cake decorating, modern pastry trends, plating techniques, ice carvings, other pastries than European, fruit carvings, praline making, and much more. This shows the huge interest students are showing which due to resources we are currently limiting them.

Question 8; this question asked the students about their preference when working in an individual kitchen. 37 of them responded that they prefer to work on individual bases, 32 prefer to work in pairs and just 2 prefer to work in larger groups. It is almost equal however I do strongly believe that certain tasks have to be performed individually and others have to be worked out in pairs depending on what is being done.

Question 9; I asked the students to whether they like the idea of having a kitchen theater whereby demonstrations can be done for large group of students all at one go. 64 students liked the idea, 5 students were interested in the concept and another 8 students did not like the concept. The students who did not like the concept said so because most of them are concerned with large groups, they prefer having smaller groups where they can contribute to the lesson.

Question 10; what would most motivate the student in a school kitchen regarding kitchen design? 46 students selected modern equipment, 36 selected the setup of the kitchen, 24 selected the overall comfort of the kitchen and 23 selected a bright airy space. Other things that were also mentioned were having similar setups as in industry and someone else also mentioned having low instrumental music played in a kitchen to motivate them. An other statement by one of the participants which in my opinion is very valid as it encompasses the real world in the industry.

“Apart from kitchen setup I would say, showing students what the real world looks like. It is not about comfort or equipment, it's about being one step ahead and making culinary school worth going to. We don't want to end up saying that we've been to the school just for a certificate, neither do we want to hear people say it's an easy course. Motivation is knowing you will make it in the industry, be good at it, honestly, it is like a weapon.”

Question 11; the last question was an open ended question requesting comments what they would like to find in the new campus re kitchen design in the pastry. As can be seen in the world cloud I have done from all the comments that I had in this question, most of the students mentines that they would like to have better quality equipment and enough equipment for everybody to benefit from. They also mentioned that the school should always be equipped with the latest equipment so when they go in the industry they will be trained to work with all the equipment that they can find. Some of them also mentioned better quality comodities and air conditioned kitchens where nessesary. Allergen kitchens where also mentioned by a couple of students as they want better knowledge on that section of the kitchen.



Figure 6. World cloud for question 11

As can be seen from this report I was very impressed with the high turnover of students that participated in this survey and gave a lot of valuable feedback. I surely have learned a lot on what and how our students think about their learning at the institute.

4.2 Feedback and analysis of interviews

For my professional interviews I have selected to meet 2 very professional persons, Mr Andrew Farrugia & Mr Jimmy Aquilina. Mr Andrew Farrugia used to be my lecturer when I was a student at the institute as a student myself and now we are colleagues. He's been at the institute for the past nineteen years and through his past and present experience in the industry and through a lot of visits to other culinary institutes abroad he definitely has a lot of knowledge which he can give me to help me in improving the design. On the other hand Mr Jimmy Aquilina is an executive pastry chef in a five star hotel locally, a member on the national culinary team and for the past 2 years he has been teaching at the institute on part time basis. Since he is not been at the institute for too long he will be able to see

staff from a different perspective and give me a good feedback to continue with my designs. As for the ethical considerations both of them were notified in advance that this interview will be used for my theses and that this piece of work can also be published to the general public.

Interview with Mr Andrew Farrugia

Q1. Will the pastry operate better if it is set in a form of a separate department then as it is currently?

It has always been his dream to see the pastry being operated and led by a professional person who can take the best choices together with the rest of the team to achieve higher results for both the school and most of all for the students. As done in the industry the pastry is always a separate department from the kitchen and led by a pastry chef. This is because you need specialised staff to work in the pastry and the kitchens need to be particularly equipped for the tasks for which they will be used. Ideally the department has to have a budget in hand and that budget can be utilised by the department for whatever they might need whether it is equipment, staff training or course development. Through his extensive experience at the institute, he always found it very difficult to implement something in the pastry as when you present it to the management it will not be approved since they do not know what exactly is required to operate. They just see it as an extra expense whilst it is actually something primary which you need to work with. For past management a chef can do both pastry and kitchen and that is definitely a huge mistake as it is completely different. That is why there is a need of having a pastry department led by a member within it to obtain better results.

Q2. In your opinion what kitchens would be needed in the pastry department?

As also mentioned above in the pastry you need a lot of specialised equipment and working in different temperatures, therefore you cannot just put all the equipment into one room and that's it. He would split the production class into two different ones. A bakery class taking care of all the bread production for all the outlets at the institute. On the other hand the other production class will be doing confectionery work on its own, producing desserts for all the outlets at the institute. This structure will give ample time to concentrate about doing good quality products and also be able to give better teaching. As for other kitchen he strongly believes that we need a chocolate laboratory whereby lessons related to chocolate work are done there. A sugar work and cake decorating room where students can train to do nicely decorated cakes and sugar centrepieces which can then be

put as show pieces at any of the restaurants or in the lobby of the institute. Something else which he would like to see in the new campus would be an ice carving room. Locally we only have few persons able to do proper ice sculptures, with this he will be able to demonstrate this skill he's got to the students and create interest and hopefully will be able to teach some students to do that work.

Whenever he visited different school's abroad they always have a kitchen theatre somewhere in the building. I found this very interesting as you can do demonstrations and talks to large groups of people all at one go. This concept is basically like a normal theatre with stepped chairs but instead of a stage you have a demonstration kitchen equipped with all the necessary equipment. This will be ideal if you want to do a special one day demonstration to students where you want to collate them all together. This space can also be rented out to suppliers to demonstrate their product to their clients.

With the ever increasing demand of food allergens he sees the need to introduce a separate kitchen to cater for this need safely. "We also need to create more awareness amongst our student about these conditions as I believe that it is not being taken seriously enough currently."

Q3. What do you think about the incorporation of technology in the kitchens?

He stated that First of all our kitchens have to be well equipped with all the necessary tools and equipment with the latest of equipment is to be introduced to the industry through the institute not as we are currently standing like. We need to be a reflection to the industry so the industry can look up to us. As with regards to technology he strongly believe that it helps in providing better support and assistance to our student however technology has to be supported with good quality teaching in line with it. Having a monitor to show the different stages in the recipe the lecturer is going through will help but tablets will distract the students into other things other than the learning outcomes.

Q4. What would you expect to find in the new campus?

First and foremost he expect to find all the best with regards to equipment and hopefully the management will take into consideration the suggestions from the persons who actually work in the spaces allocated, as they are the best people to give constructive feedback and suggestions. The new campus is said to be a state of the art therefore everything needs to be the way it should be. We will be increasing the number of students to what we are currently used to and therefore we need stronger departments with enough funding to be able to run them efficiently. Something he would like to find is the way we run the food

supplies, hopefully in the new campus because of separate kitchens all the supplies will be stored in the respective kitchens and not a lot of different bags with ingredients like we currently have. There is still a lot of work to do however he believes that if we work in a team we will achieve the required results.

Although we continuously have a lot of discussions together as with regards to the new campus since we currently share the same office at the institute, this interview turned out to be very fruitful for my thesis as he made me realise things that I was completely ignoring in my research.

Interview with Mr Jimmy Aquilina

Q1. Will the pastry operate better if it is set in a form of a separate department then as it is currently?

He responded that it is definitely the way forward same as what happens in the industry. He mentioned that in the pastry you have to have skilled persons and not just anybody can work in the pastry. Also a kitchen has to be specifically designed and equipped to work in an efficient way and produce good quality products. He also mentioned that we need to start selecting the students and if they would like to specialize in the pastry their industrial placements at an early stage will be done in a pastry to give them better exposure. Also the final year of their studies they need to choose between pastry and kitchen and if they opt for pastry it will be strictly dedicated to pastry so they can specialize and practice the required skills in their field of specialization. This will produce better quality pastry chefs for the industry covering a wider range of products related to pastry.

Q2. In your opinion what kitchens would be needed in the pastry department?

Apart from the normal production and individual kitchens he also mentioned that we need to add a chocolate lab whereby lessons related to chocolate can be done with all the necessary equipment found in them. We also need an ice cream room whereby ice creams can be prepared in a safe way this will introduce our future students to the world of artisanal ice cream. He also told me that it is also necessary to start showing students the skills to do celebration cakes and sugar work. As a pastry chef working in the industry he is finding it very difficult to find well trained students for the pastry after they come out from our institute. Therefore the need to include the above mentioned kitchens within the pastry department is necessary. When I mentioned that I was thinking of separating the pastry production in 2 classes confectionery and bakery he told me that it is a great idea and that will help improve the standards of the finished products. He suggested that

production and individual are fitted with individual bench fridges apart from a common fridge so everyone will have his work station equipped with everything needed.

I also asked him what are his taught about doing a food intolerance kitchen, to this he showed a great interest because he has a member of his family which suffers from celiac allergen. He told me that there are very few places on the island which are actually certified as 100% safe. With this continuously increasing condition we need to further educate and show our student the proper way one can prepare goods in a safe way. He told me that it needs to be in a complete detached room and completely sealed off from all the rest of the operation to remove any risk of contamination. Leading to the kitchen one needs to find an anti-room where students will change into clean whites and clean their shoes so the environment is safe from possible contaminants. He also suggested that we should design a module spread on one semester where students will be taught how to do different desserts for allergenic persons especially celiac and lactose, due to the lack of knowledge there currently is in the catering industry. He told me that currently the legislation to certify that an establishment is safe for celiac states that in food there needs to be less than twenty parts per million particles. So even a wheat grain will be enough to cause an allergenic reaction. In the kitchen itself we have to also have a packaging machine where all the products prepared have to be sealed before they go out of that kitchen.

Q3. What do you think about the incorporation of technology in the kitchens?

At first he mentioned that our kitchens will need to be equipped with the latest of equipment as with regards to the kitchen equipment like thermo-mix paco-jet and sous vide machines. Then I explained that I am referring to tech as in tablets or monitors, he promptly responded that he went once to a Valrhona course abroad and all the stations where fitted with screens where students could go through the recipe that the lecturer was working with on screen. He found that very helpful when he was working in their kitchens and suggested that it will be a great idea to have them in our kitchens.

Q4. What would you expect to find in the new campus?

The best as in equipment and also as for the actual skills being taught to the future pastry chefs. Something else he also mentioned is the incorporation of a walk in fridge and freezer to be used as a common storage of finished products to be then transferred to their respective destinations. If students are preparing items to be served in any of the restaurants at the institute they should also be able to finish them themselves as well so they will see the actual finished product themselves. If it is to be served in the cafeteria students are to go down in the cafeteria and set up the display counter themselves as that is also another learning outcome they need to know. He also mentioned the use of service

food lifts to transfer the desserts from the production area to the restaurant since they will not be on the same floor.

4.3 Current situation at the institute.

Since I am a lecturer myself at the institute I can also give an insight of the current situation at the institute as for kitchen design and module layouts and designs. The current campus we are currently using was a very good center for tourism studies way back in 1987 when it opened its doors, however as time went by and the number of students started to increase and the campus started facing some problems.

The current campus was not actually built to host a school it was a British Navy barracks and therefore the building was not custom made to accommodate a school with a number of kitchen labs. Since the building was not custom made for the purpose there is a lot of logistical problems. All the kitchens are also a passage to other areas in the school and therefore the kitchen cannot be locked once they are not in use, leading to equipment being transferred from one kitchen to the other freely therefore there is no control of the equipment. This leads to a lot of frustration to lecturing staff working in the kitchens, that is why I chose this title for my thesis as hopefully this will be taken into consideration once the actual designs of the kitchens is being done. Some four years ago they did a new kitchen in another campus we have called Martin Luther King, this is a separate kitchen and as soon as the lecture is done the kitchen is cleaned and locked away. It has been very successful and much better than any other kitchen we have at the main campus because of that reason.

Since it is a government owned school when it comes to procurement of equipment it is not that straightforward, it is just until lately under the current management that they are investing in more equipment but we still need a lot more. As a pastry we only have one kitchen where we produce desserts for the restaurant and for individual we use the same kitchen that is used for the normal kitchen and larder modules. This is not the way it should be as in the pastry you need specific equipment and therefore the kitchen has to be specifically equipped for the purpose for which it will be used. We currently are not doing any specialised courses like sugar craft, chocolate courses and cake decoration again due to the lack of resources and space we have. This will hopefully be addressed in the new campus.

We are also facing a huge problem because we do not have a pastry department, we have just one department food preparation and production and lessons in the pastry are delivered by any lecturer in food production whether the person has any pastry background or not. This current system leads to a lack of standardisation and lower

quality teaching. Having a pastry department within the structure led by a member within the same department will help achieve better results and improve the quality of the teaching since it is continuously being monitored and all the members are working as one team.

Theory sessions are currently held in normal class rooms which sometimes makes understanding of practical concepts very hard by some students to visualise the idea and find it very hard to learn. Through the research I did and also I strongly believe that theory classes should be done during the individual practical classes. An example would be if you are explaining the process of making puff pastry, the lecturer is actually doing the pastry there and then in front of the students. This will help students to actually visualise the product before they can do it themselves.

As for pastry production lessons we currently have one class producing both bakery products and confectionary. This makes it difficult for the lecturer to concentrate and be able to produce the best possible results in all the different aspects. I strongly believe that they should be separated to get the utmost out of each separate class.

Something else which is currently missing is a kitchen theater, whenever we need to do a demonstration we have to organise everything from scratch. It is not something straight forward and having a theater equipped with a kitchen in it will definitely help a lot in the teaching when it comes for demonstrations on specific foods and trends by either lecturers or guest speakers.

4.4 DE sectioning of the space provided into separate kitchens.

With all the above mentioned information and with the findings that I have done through my research I believe that I can build up a good design and hopefully help in implementing a better quality department for future students to learn in. Below is a list of all the different kitchens and spaces that will be needed at the new campus in my opinion.

- Two confectionary production kitchens, whereby all the desserts to be sold in the various restaurants of the institute will be produced. Having a kitchen specializing in just confectionary it will give a better end product to both the students and also to the customers dining at our restaurants.
- Bakery Kitchen, all the bread to be used in the institute will be produced in this kitchen. This will help give better knowledge in bread production allowing for enough time to do bread the way it should be done and also using the right equipment. Hopefully this will encourage some students to take into the bakery

buisness and start doing different types of bread other than the normal every day breads.

- Three individual pastry kitchens, in these classes students will first have a theory session by the lecturer together with a demonstration of whatever the subject of the day is. After the demonstration they will work in pairs on their benches to produce the same work that the lecturer was doing. I believe we need three of these classes due to the number of students that is forecasted to enter the institute and these classes will be used with all the students as it will introduce them to the pastry world. These kitshens can also be used for part time courses too.
- A Chocolate Lab, this kitchen will be used to do lessons related to chocolate from praline making to centre pieces. Chocolate work entails a lot of specific equipment and also different working environments and therefore the need of having a separate kitchen. This was also mentioned in the questionnaire given to the students
- A cake decoration & sugar Craft Kitchen, this would be used to give specialised courses in celebration cake decoration and can also be used for sugar work to create centrepieces.
- Ice cream production kitchen, preparing ice cream can be very dangerous since it is highly parishible therefore the need to have it in a separate kitchen is a must. Unfurtunety currently the industry is full of convienience products especially in the pastry, and ice cream is one of them therefore having this class will hopefully motivate students to do their own ice creams at their work places.
- Kitchen theather, this will be used to do demonstrations to large number of students or guests all at one go.
- Allergens kitchen mainly gluten and lactos free, with this ever increasing demand for allergen free foods I think that we need to do something to address this issue. This kitchen will provide the students with the nessesary knowledge needed to prepare this food safely and create more awarness for the industry trough our students.
- Ice carving room, we currently are in a situation that only two persons are capable of doing this kind of work professionally on the island and one of them is Mr Farrugia. He would like to be able to teach this art to our students so this skill would be learned and the level of the industry will rise. That is why he proposed that we should get an ice carving laborotry with the nessesary machines and storage space for the blocks.

5 Discussion

5.1 Justification of the setups designed and Applicability.

When I was going through the process of listing the different separate spaces needed to be used in the pastry department it looked like a massive operation. I have subdivided the space provided into twelve separate kitchens as also mentioned in the de sectioning part. I have opted to use all this space and do this amount of kitchens as it was something which cropped out through the questions in the questionnaires and interviews that I have done. When the ministry for tourism launched this project they forecasted that it is forecasted that the number of students will be more than two thousand five hundred which is why I have done all these kitchens. The minister also stated that our institute needs to be a training center of excellence to attract students from abroad to come and learn in our institute. Therefore I had to do my best in designing all the spaces provided in the best possible way to cater for large numbers of students and also being one of the latest and best equipped catering schools in the world. All this can be achieved once all the funding is provided as doing this kind of project will definitely cost a lot of money to do it the way it should be done.

All the kitchen designs I have done can be found in the appendices section, although the ones in the thesis are not to scale due to scaling when pasting them on the document however the original ones I have are to scale and all the equipment I have drawn in all the plans are also to scale so all the things can fit as drawn in the picture.

For the individual kitchens I have selected to design work benches in the form of an L shape and students will be working in pairs. On top of every two work stations there will be a monitor fixed to the ceiling so any recipes or staff related to the lesson can be shown on them by the lecturer. In front of all the stations there will be the station of the lecturer whereby he will be doing the demonstration together with the theory about the subject for all the students, that is why I left space for chairs or benches between the student stations and the lecturer so students can sit during the theory and demonstration session. On separate sheets I have also designed the work benches to be used for all the individual kitchens so there is a standard and they can cater for all the pastry work to be done. In the cake decorating & sugar craft room and in the chocolate laboratory I have used the same L shaped work benches since it will be also a form of an individual kitchen however there is different equipment in the kitchens to cater for the need of that particular class.

We are always preaching to our students that since ice cream is a highly perishable product we need to do it in a separate room and also the legislation states this. That is why I have selected to do a separate kitchen for this reason. Home made artisanal ice cream is also one of the modern trends in the pastry and is something which needs to be taught to our students. I have designed this kitchen as a production kitchen, I have separated the hot area with a glass and aluminium partition from the rest of the kitchen which will be temperature controlled to maintain a safe working temperature. I have also included a walk in freezer to be used for storage, all the prepared products will be served in the cafeteria and restaurants on campus.

As for the bakery kitchen this will be used to produce all the breads used at the institute. This kitchen was also designed as a production kitchen and will be able to produce large numbers of bread using the right equipment to be used by all the other outlets. I have also inserted a walk in freezer and fridge to be used for storage of par baked breads to be later re baked and served.

In both confectionary production classes although the space was a bit limited however I have managed to fit all the necessary tools to be used. I have also separated the hot area from the cold area to be able to work in a safe and comfortable environment. The work produced in these kitchens will also be used by the various other outlets on campus.

As also seen through my research the need arose to do an allergen kitchen whereby gluten free products can be done safely. I have placed this kitchen at the far end of the pastry department and the other kitchen next to it is the chocolate lab which is also free from contaminants. I have subdivided the area into 4 major areas, upon entrance one finds an anti room where students can hang any overalls and sanitize themselves before entering the area. Upon entrance through the anti room one finds the cold confectionary area whereby all cold preparations can be done, from there there is an other glass partition leading to the hot kitchen. Through the cold confectionary area there is an other door leading to the packaging and sealing area then leading to an other anti room towards the exit of the kitchen. With this system all the prepared food will be prepared and packed within a safe environment and then once it is out of that kitchen it is completely sealed and free from contaminants.

The kitchen theater is there to be able to hold specialised demonstration classes for a large number of students all at one go. It can seat up to 150 guests all at one go with a theater style setup. In the demonstration area there is the required equipment to do any type of demonstration with overhead monitors for display purposes and wired with a sound system so that the lecturer can speak through it.

The last kitchen is the ice carving room, this was not placed on the same floor of the pastry department since it is quiet a messy type of product and also because of logistics to take out the ice carvings from the building if the need arises. This room was placed in the basement next to the loading bay. And in it there are all the nessesary equipment to do this work form ice block makers to a walk in freezer to store the blocks and finished products.

Since we have been talking about having a pastry department I have also placed the office for all the lecturers working within the department on the same floor. I did a large sub store for both equipment and also ingreidents together with an office for technitians working in the department. In one of the corridors next to the production kitchens there is also a common walk in fridge and freezer so it can be used to store both general supplies and also finished products.

5.2 Project plan.

Below is the chart showing how this project was developed from the reaserch stage to interviews and questionnaire to the development.

Date	Tasks done
Febuary 2016	Submitted the thesis preliminary outline and was assigned to my tutor Mr Markku Halmeenmäki, who was of great help for my project.
April 2016	Sent a sample questionnare to be distributed to students for any corrections to my tutor and he got back to me with suggestions to enhace and get better answers from it.
May 2016	Sent out the questionnaire to my students and gor 73 replys within a week. Worked on the analysis from the questionnaire.
June 2016	Started doing reaserch to gether whatever information I could get on kitchen design, pedagogy, legislation, and modern pastry trends. This process was very lengthy as information on the subject was very limited.
August 2016	Started with writing the introduction for the thesis
January-March 2017	Did most of the write up and the theoratical framework for the thesis. Prepered the questions for the interviews and held them on 2 separate days of the same week and did the reports I got back from them.

April 2017	Developed the actual kitchen designs using the plans that were handed to me thanks to the CEO of the institute Mr Pierre Fenech. Spoke to my tutor during the course that we had together during our easter recess and told me where I need to amend in order to finalise my thesis. Finalised all the emendments required in the thesis.
May 2017	Submitted the thesis Prepared the presentation of my thesis to be presented later in June
June 2017	Present the thesis to my colleagues and the management at ITS
September 2019	Forecasted date of finishing of this projet to start being used by our students.

6 Conclusion

As a conclusion I can say that although this journey was not an easy one however looking back I believe that I learned a lot of different staff related to the subject. Hopefully with all the research done it will be accepted by the Institutes management and hopefully use it for the actual design of the pastry department. That will give me a lot of satisfaction as I will partially own the process of this new campus.

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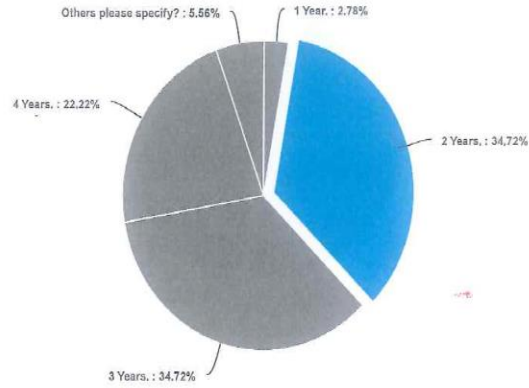
8 Appendix

8.1 Report of questionnaire distributed to students

Kitchen Design for the new Pastry Department - Dashboard

VIEWS 116	STARTED 97	COMPLETED 72	COMPLETION RATE 74.23%	DROPOUTS 25	TIME TO COMPLETE 6 mins
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For how long have you been a student at ITS?

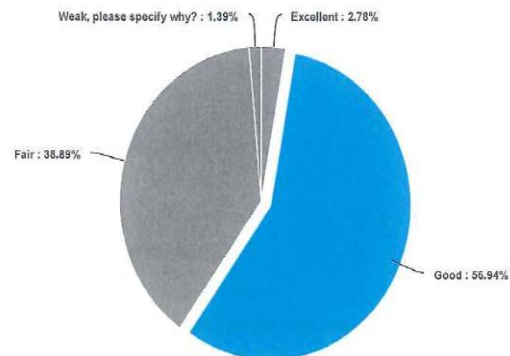


Answer	Count	Percent
1 Year.	2	2.78%
2 Years.	25	34.72%
3 Years.	25	34.72%
4 Years.	16	22.22%
Others please specify?	4	5.56%
Total	72	100%

For how long have you been a student at ITS? - Text Data for Others please specify?

05/19/2016	52635952	part time student
05/18/2016	52622200	had been for 3 years
05/18/2016	52570528	Part time student, one and a half years
05/18/2016	52569774	Part time course (basic & intermediate pastry and baking)

How would you grade the ITS kitchens Overall?

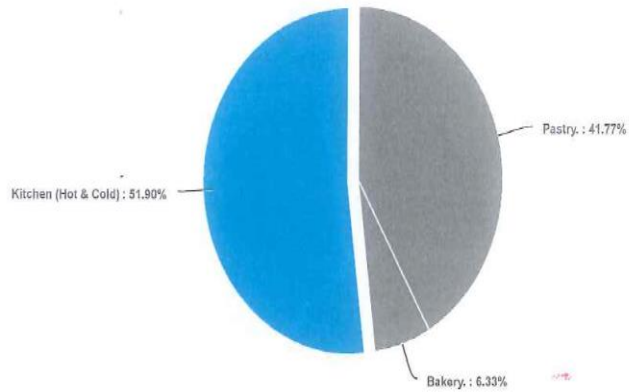


Answer	Count	Percent
Excellent	2	2.78%
Good	41	56.94%
Fair	28	38.89%
Weak, please specify why?	1	1.39%

How would you grade the ITS kitchens Overall? - Text Data for Weak, please specify why?

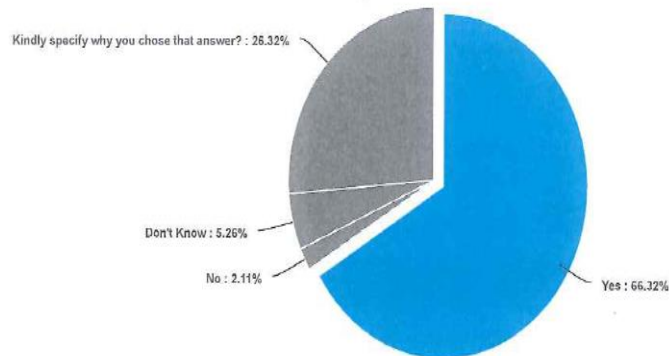
05/17/2016 52505366 ps. Ive been here for 6 years

In what area of the kitchen would you prefer to specialise in your future career?



Answer	Count	Percent
Pastry,	33	41.77%
Bakery,	5	6.33%
Kitchen (Hot & Cold)	41	51.9%
Total	79	100 %

Would you prefer if the theory sessions are held in the individual kitchens, aided with demonstrations?



Answer	Count	Percent
Yes	63	66.32%
No	2	2.11%
Don't Know	5	5.26%
Kindly specify why you chose that answer?	25	26.32%
Total	95	100 %

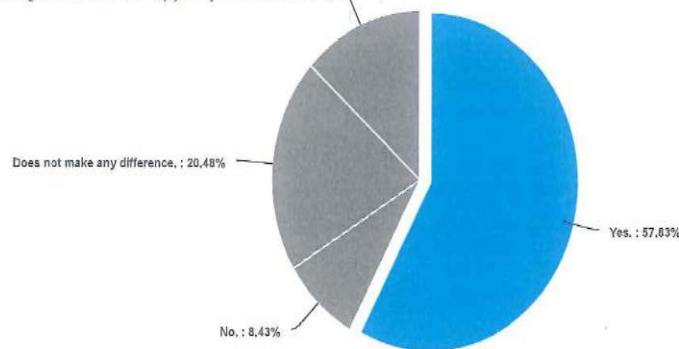
Would you prefer if the theory sessions are held in the individual kitchens, aided with demonstrations? - Text Data for Kindly specify why you chose that answer?

- 05/19/2016 52636788 i would like it more since it is hands on.
- 05/19/2016 52686952 it will be much easier to remember how something is done by putting the speech into practice.
- 05/18/2016 52622200 Theoretical concepts can be better explained and remembered by the students if given demonstration, Also cooking should be fun and inspiring. Bounding students to the classroom does not motivate the lesser intelligent to keep up even though they could be very talented in the kitchen.
- 05/18/2016 52575623 It would be more helpful that if you have a theory lesson on chocolate tempering it's better if you see the 4 methods being done in front of you.
- 05/18/2016 52570186 Students get to see exactly what lecturers are talking about, rather than seeing a picture on a screen or a book, which will enhance the learning experience
- 05/18/2016 52569774 One will understand more.

05/17/2016	52548071	Demonstrations and hands on are always a plus one to increase knowledge.
05/17/2016	52548743	not entirely every lesson but it would be nice to have practical demonstration every now and then on what we have learned in theory classes.
05/17/2016	52540445	I think it would be more interesting and informative, seeing what exactly the lecture is about and seeing different methods of how to do the item. when do it in practice individually.
05/17/2016	52539660	ex/butchery,why would we learn butchery on a television when it can be shown to us live,the cuts would be used in the preperation of the meat
05/17/2016	52533781	It would be easier on the student to understand and easier on the lecturer to explain
05/17/2016	52521741	It will be easier for the studenis to understand and learn what is actual done in the industry.
05/17/2016	52508132	To demonstrate
05/17/2016	52505422	1. Demonstrations will help the students understand more about what the lecturer is saying. 2. Students will be able to learn faster with visual learning. 3. It helps the students to stay focused. During class lectures it is easily to get distracted. 4. It serves to teach all the students the same material and no advantage or disadvantage over each other.
05/17/2016	52506580	Yes because I believe that the delivery can be related to practical examples
05/17/2016	52505652	because for me when doing theory session in normal class is boring. In the individual kitchens you can see what the lecturer is talking about and see the demonstration with your own eyes
05/17/2016	52499566	In some cases demonstrations are needed but not all cases are the same.
05/17/2016	52499200	Yes i would prefer to see a demonstration in the lesson even the student itself is learning by theory and even by seeing the thing its self happening at that time so he/she are learning on both ways of aspects.
05/16/2016	52483157	It help more to understand what your learning
05/16/2016	52482384	Because we can learn more
05/16/2016	52480085	I think it would be much easier for the students to understand and as well for the lecturer as it will be easier for him to teach.
05/16/2016	52479187	because we can see what the teacher is explaining, for example if s/he is teaching us diagrams of animals we can see what s/he is saying
05/16/2016	52475237	Not sure all theory lessons would be relevant in a kitchen. Demonstrations would undoubtedly be helpful, but not sure of it's practicality.
05/16/2016	52474785	theory classes should be kept in a classroom cause its a bit useless going in the kitchen for an hour just do explain and demo things which we do it individuals already.
05/16/2016	52474877	It will help visualise some of the subjects better

Would it facilitate your sessions in the kitchen if you have a monitor on your work station showing recipes or any information related to the subject of the day?

specify if there is any other technological devices that will help you in your studies? : 13.25%



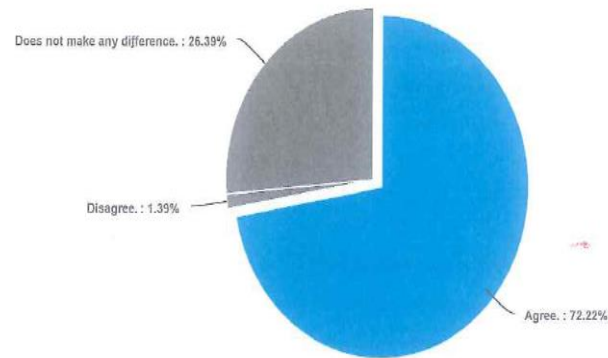
Answer	Count	Percent	20%	40%	60%	80%	100%
Yes.	48	57.83%					
No.	7	8.43%					
Does not make any difference.	17	20.48%					
Kindly specify if there is any other technological devices that will help you in your studies?	11	13.25%					
Total	83	100 %					

Would it facilitate your sessions in the kitchen if you have a monitor on your work station showing recipes or any information related to the subject of the day? - Text Data for Kindly specify if there is any other technological devices that will help you in your studies?

05/19/2016	52636788	if you have a good explanation you do not need the monitor maybe it can show you the recipe.
05/19/2016	52635952	i prefer a hard copy this would allow the student to write additional notes pertaining to the recipe in question
05/18/2016	52622200	I would rather spend the money on the best culinary equipment that is on the market. A monitor is certainly not needed.
05/18/2016	52575623	Yes for two reason first you eliminate the books from the station which can easily be splashed, the other you could flow more
05/18/2016	52570517	less expensive books to buy
05/17/2016	52548071	It obviously would but that comes at a later stage after everything is settled and of great quality. There are more priorities.

05/17/2016	52540445	I think it would be helpful even looking for ideas through the internet.
05/17/2016	52499200	Yes it would be a great idea especially for hygienic reasons especially for cross contamination especially if we bring a book or note pad and imagine we put this everywhere and imagine by this we may contaminate the food .
05/16/2016	52475237	Interesting idea!
05/16/2016	52475391	No technological devices needed. Just lectures with good techniques who know how to explain well and with passion
05/16/2016	52473500	However student will get lazy with all the information provided and honesty, briefing and monitoring of teachers are much if not enough help. If not, students can always learn from the lack of information provided through experimentation, There is ample time for that.

Would you find it beneficiary if we separate the bread bakery class from the pastry class so more attention and better quality products will be achieved?



Answer	Count	Percent
Agree.	52	72.22%
Disagree.	1	1.39%
Does not make any difference.	19	26.39%
Total	72	100 %

Are there any other pastry related subjects you would like to see added in your future studies?

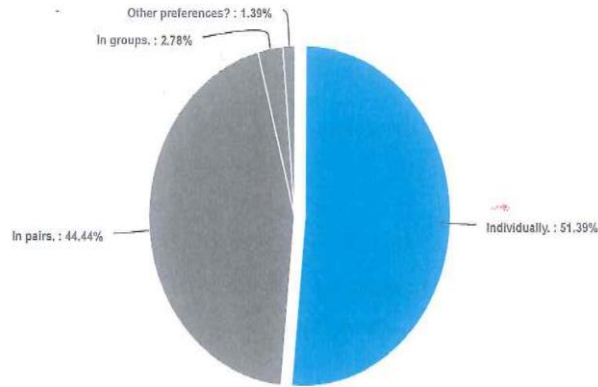
Are there any other pastry related subjects you would like to see added in your future studies?

05/19/2016	52636788	chocolate work and sugar work
05/19/2016	52635952	the courses are very well presented and I personally think that all areas were covered
05/18/2016	52622200	modern techniques, different pastries of different cultures, history of pastry, plated deserts in relation to restaurants rather than 'hotel-style' pastry.
05/18/2016	52612685	sugar and chocolate work to be dealt with in more detail
05/18/2016	52598824	Chocolate works and sugar works
05/18/2016	52594821	Cake decorating
05/18/2016	52591517	More moderization of dishes
05/18/2016	52582701	Chocolate centre pieces and petit fours sessions
05/18/2016	52581216	No
05/18/2016	52579782	Chocolate production and fruit carving
05/18/2016	52575623	Chocolate centerpiece fat carving cooked sugar and sugar craft
05/18/2016	52573857	More ice cream making and even sculpteres of different kind
05/18/2016	52573177	no
05/18/2016	52572229	Detailed works in chocolate
05/18/2016	52569800	No
05/19/2016	52570517	how to build cakes and design them with icing and others.
05/18/2016	52570528	Strudel pastry, more Maltese sweets
05/18/2016	52570188	More specialisd, chocolate work training, such as bon-bon and truffle and mini confections
05/18/2016	52570574	Chocolate
05/18/2016	52569774	..

05/19/2016	52569711	Chocolate
05/17/2016	52564322	Chocolate sugar sculptures Sugar flowers and decorations
05/17/2016	52563717	No
05/17/2016	52548071	All the physics behind pastry and the kitchen in general is quite nice and interesting for those wanting to learn it.
05/17/2016	52546743	Sugar work, Chocolate work, Cake Decorations, more advanced theory classes. a chance to try your own recipes and come up with new desserts.
05/17/2016	52540445	Sugar related products - sugar flowers, cake covering ecc.. and the study of chocolate in detail to include a centerpiece and garnishes.
05/17/2016	52539660	
05/17/2016	52536402	History of pastries
05/17/2016	52533781	sugar work
05/17/2016	52532206	Yes
05/17/2016	52531200	Cake decorating Candy Sculptures
05/17/2016	52523930	It's difficult but interesting to have basics on big cakes like a wedding cake
05/17/2016	52521741	Plating, garnishes, cake decorating, centre pieces
05/17/2016	52516808	Decorating
05/17/2016	52508132	Making cakes such as weddings bday ect
05/17/2016	52505422	- Specifically teach students which plates to use, and show different ways how to garnish. - Teach Chocolate garnishes, different styles and techniques, helping the student to master in those skills
05/17/2016	52500500	no my area
05/17/2016	52506202	Yes ofcourse such as modern trends, new techniques and garnishes related to individual plating.
05/17/2016	52505652	making pizza dough because in the Maltese industry a lot of restaurant are opening with pizza sections
05/17/2016	52505366	no
05/17/2016	52502712	No
05/17/2016	52499809	Chocolate sugar sculptures
05/17/2016	52499586	I would like a class specifically about plating and design.
05/17/2016	52499200	Chocolate sculpting
05/16/2016	52499028	More lessons on chocolate and sugar, how to be creative with those.
05/16/2016	52498436	Fruit carvings Chocolate designs Modern cuisine like gelifications, spherifications
05/16/2016	52484015	Different cruise
05/16/2016	52483157	Bread baking in more detail
05/16/2016	52482384	Don't now
05/16/2016	52482040	Modern desserts and plating techniques.
05/16/2016	52480557	Sugar work
05/16/2016	52480352	no
05/16/2016	52480085	chocolate
05/16/2016	52479493	its not a bad idea to do middle eastern dessert as well
05/16/2016	52480052	No
05/16/2016	52479187	cake decorating and stacking
05/16/2016	52475532	Sugar craft
05/16/2016	52475237	Foreign sweets More specialised chocolate and sugar work
05/16/2016	52476916	Chocolate/sugar work
05/16/2016	52476003	Sugar work
05/16/2016	52475889	No
05/16/2016	52475391	The Basics are the most important. However keeping in mind we are not still living in the 1900s.
05/16/2016	52475799	Chocolate work
05/16/2016	52475255	No

05/16/2016	52473500	More time dedicated to chocolate, ice sculpting, butter sculpting and every now and then the use of trending products such as oreos and fun casual cake making. Also shaping sugar paste in themed cakes and calligraphy ex. "happy birthday kate."
05/16/2016	52474785	types of basic pastry and bread around the world. ITS should have alot more variety since the industry is slowly shifting into more of an open cuisine which involves alot of fusion,
05/16/2016	52474690	Chocolate making and cake decorating both for theory and practical
05/16/2016	52474786	No
05/16/2016	52474877	Center pieces at an earlier stage along with ice sculpting
05/16/2016	52474712	nothing
05/16/2016	52472019	maybe some Asian cuisine and not always European .. a bit of difference
05/16/2016	52471800	Specified lectures for sugar, chocolate works and other related.

When working in an individual practical class how do you prefer to work

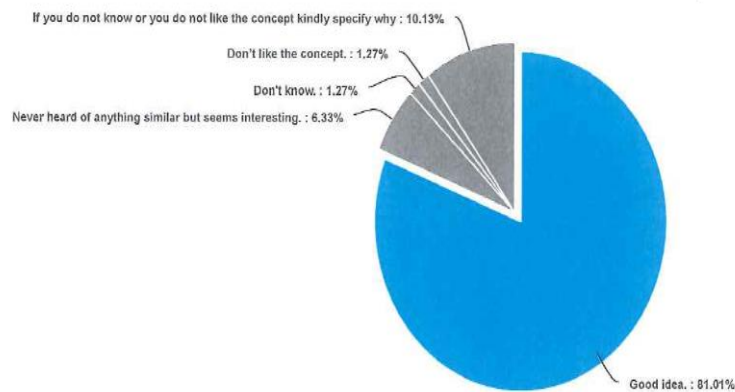


Answer	Count	Percent
Individually.	37	51.39%
In pairs.	32	44.44%
In groups.	2	2.78%
Other preferences?	1	1.39%
Total	72	100 %

When working in an individual practical class how do you prefer to work - Text Data for Other preferences?

05/17/2016 52546743 depends on whom I am working with.

Would it be a good idea if we include a kitchen theatre where we can do demonstrations by foreign specialized chefs for large groups of students all at one go?



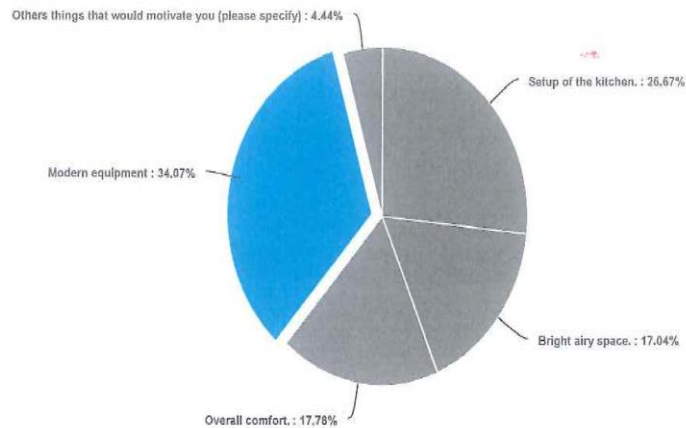
Answer	Count	Percent
Good idea.	64	81.01%
Never heard of anything similar but seems interesting.	5	6.33%
Don't know.	1	1.27%
Don't like the concept.	1	1.27%

If you do not know or you do not like the concept kindly specify why	8	10.13%	
Total	79	100 %	

Would it be a good idea if we include a kitchen theatre where we can do demonstrations by foreign specialized chefs for large groups of students all at one go? - Text Data for If you do not know or you do not like the concept kindly specify why

05/19/2016	52582701	Good to have ideas from different cultures and countries.
05/18/2016	52570186	Very very good idea, as long as the so called big group of students is not too big, around 20 in my opinion will be a good number
05/18/2016	52569774	I think that students get more attention in small groups
05/17/2016	52505422	It can be both good and bad. I have been into one of those demonstrations and from my side it was a failure because the chef did some mistakes which were quite basic. It is important that the chef knows what he's doing.
05/17/2016	50506580	good idea but there will be less interaction into class
05/16/2016	52475532	And it would be a good idea too to project it on screen for the detail
05/16/2016	52475237	Define large. Too large a group will lose students' focus
05/16/2016	52475391	I think it is better to spend the money on bringing more skilled full time lecturers rather than having a one off foreign lecturer

What would motivate you most when working in a school kitchen with regards to design?



Answer	Count	Percent	20%	40%	60%	80%	100%
Setup of the kitchen.	36	26.67%	[Bar chart showing 26.67%]				
Bright airy space.	23	17.04%	[Bar chart showing 17.04%]				
Overall comfort.	24	17.78%	[Bar chart showing 17.78%]				
Modern equipment	46	34.07%	[Bar chart showing 34.07%]				
Others things that would motivate you (please specify)	6	4.44%	[Bar chart showing 4.44%]				
Total	135	100 %					

What would motivate you most when working in a school kitchen with regards to design? - Text Data for Others things that would motivate you (please specify)

05/18/2016	52570186	All of the above, including a good in depth demonstration about the subjects being tackled
05/17/2016	52548071	Have a setup just like in the industry.
05/17/2016	52546743	investment in equipment the is necessary to introduce different sectors of the pastry department
05/17/2016	52505422	Instrumental music in low volume. In my opinion this helps the students to be motivated and kept alert.
05/16/2016	52482040	Menu's as modern recipes
05/16/2016	52473500	Apart from kitchen setup I would say, showing students what the real world looks like. It is not about comfort or equipment, its about being one step ahead and making culinary school worth going to. We dont want to end up saying that we've been to the school just for a certificate, neither do we want to hear people say its an easy course. Motivation is knowing you will make it in the industry, be good at it, honestly, it is like a weapon.

11. In a couple of words briefly explain what you would expect in the new ITS campus with regards to kitchen setups and design in the pastry department? What you would like to find?

11. In a couple of words briefly explain what you would expect in the new ITS campus with regards to kitchen setups and design in the pastry department? What you would like to find?

05/19/2016	52636788	I would like to find go working equipment and enaf equipment for every one, and the kitchen is modern
05/19/2016	52635952	a modern and different layout to what there is at present..
05/18/2016	52622200	More specialised equipment.
05/18/2016	52612665	new modern equipment such as tempering machines
05/18/2016	52598824	Well equipped kitchen

05/19/2016	52594821	Latest technology in equipment
05/18/2016	52591517	Modern equipment with teachers equally qualified in the job with a lot of motivation
05/18/2016	52582705	More organisation during exams, Professional canteen or better a show up restaurant, A specific demo room for producing ice cream and gluten free bread.
05/18/2016	52581216	N/A
05/18/2016	52579782	To have more equipment for each student
05/18/2016	52575623	Proper worktops for pastry and the right and working equipment
05/18/2016	52573857	More suitable equipment
05/16/2016	52573177	newer equipment more space
05/14/2016	52572229	Some good decent and up to date equipment . And that also includes some young and modern age lecturers which are up to date with what's happening around them in the industry.
05/10/2016	52569800	New equipment, a good design for the a la carte kitchen, and also a well designed pastry with all the essential equipment.
05/18/2016	52570517	I would expect enough equipments for everyone so during practical exams we dont have to get our own materials.
05/18/2016	52570528	Convection ovens within each individual station
05/18/2016	52570186	The catering industry is all the time on the move and changes, so students will expect knowledge and training on modern equipment and new cooking techniques not forgetting a good fundamental training of the basics and classical dishes
05/18/2016	52570574	A state of the art kitchen that shall expose it's students to as many techniques as possible
05/18/2016	52569774	Definitely not gas ovens in the pastry department. Electric ovens gives much better results.
05/18/2016	52569711	A better designed kitchen setup.
05/17/2016	52564322	More modern equipment Convection ovens not like does in hk Bakery room
05/17/2016	52563717	More modern equipment
05/17/2016	52548071	True that if it is over equiped people would try and steal but if modern equipment is introduced, new students could actually know what they will be up against when in the industry. It is important to know the basic and the "how it should be" but the "by the book" is rarely used now a days in the industry so why not teach us/them what they will really need?
05/17/2016	52546743	individual work benches with the necessary equipment and an comfortable work space.
05/17/2016	52540445	individual stations to work on , including Marble tops, air-conditioned environment, and enough equipment for all students to work with and maybe small separate rooms where we can work the products for a special dietary requirement (gluten / lactose free)
05/17/2016	52539860	As i will not be present as a studen in ITS when the new ITS campus is built, I assume that everything will be modernized, enough equipment, enough space and knowledge given to students, there is a hundred things that can be done to increase the students knowledge from butchery to hot or cold to pastry and baking
05/17/2016	52538402	Everything to work properly
05/17/2016	52533781	Adequate amount of equipment and the equipment is modern
05/17/2016	52532206	I would like to find good, flexible and all the necessary equipment, That will result in a personal satisfaction and alter all a good result in the final product.
05/17/2016	52531290	Equipment for every student Cleanliness Modern equipment More space More interesting courses
05/17/2016	52529930	Air conditioned kitchens
05/17/2016	52521741	Improved kitchen design, with sections for different kind of tasks. Demonstration work tops. Tools and equipment used in the industry.
05/17/2016	52510809	New tech to make better desserts
05/17/2016	52508132	Good equipment more equipment
05/17/2016	52505422	1. A well labelled kitchen - explaining how machinery is used, fire extinguishers, fire exits etc 2. A well stocked up kitchen. 3. Enough space between heavy equipment eg: enough space between working tables and Blast chillers/ fridges
05/17/2016	52506580	I would like to find more modern equipment that it will be introduced to me as students before I start working into the industry. By that I can prove what I have learn.
05/17/2016	52506202	Small kitchens with individual area.
05/17/2016	52505852	making functions and ala cart so that the student can learn the dining that he/she will experience in the industry
05/17/2016	52505366	better equipment, better designing of the kitchen, at least a decent haccp system, more plates and more quantities, better canteen food,
05/17/2016	52502712	New and improved equipment. New modern menus
05/17/2016	52499809	more equipment , modern equipment
05/17/2016	52498566	I wish to find all the necessary equipment and ingredients when going for the lesson as there may not be enough equipment or ingredients available.
05/17/2016	52498200	I would like that we find a good setup of kitchen and equipment and and for bread there will be another section even for glutenfree people if possible and a section for molecular gastronomy.
05/16/2016	52498028	All equipment and ingredients should be available and a good number of equipment should also be available, I'm also expecting it to be big and spacious.
05/16/2016	52498436	New equipment Higher expectation for students

		Higher outcome
05/16/2016	52484015	More investment in equipment and a better design of the kitchens
05/16/2016	52483157	More equipment fir each student
05/16/2016	52482384	Have more equipment
05/16/2016	52482040	Would love to find more new and modern mostly equipment used in the industry, better setup of the kitchen.
05/16/2016	52480557	Modern equipment More working space More facilities to try new things
05/16/2016	52480352	modern kitchen and equipment
05/16/2016	52480085	I would expect more organization as from the registrar for sure and more equipment and material for the students to work with
05/16/2016	52479493	i would like to find more spaces / modern equipment (enough equipment for every one)
05/16/2016	52480052	Equipment that can relate more to the modern cuisine.invest on more specified equipment.
05/16/2016	52479187	more appliances
05/16/2016	52475532	More equipment to work with maybe stainless steel pots, wooden spoons, rolling pins. And that when we go to the store we will find enough equipment to use in mstrals or functions of large groups for example moulds. Larger blast chillers or two small one in pastry and one in kitchen so there won't be any cross contamination due all these allergies that exist.
05/16/2016	52475237	Can't complain much about the current pastry kitchen. Individual classes however need the same sort of things available. Equipment and some ingredients at our disposal for creativity (like we had for kitchen last semester) eg, if individual lesson about making croissants, having chocolate powder or something to attempt making chocolate ones (mentioned this just as an example)
05/16/2016	52476916	More equipment available to work with, bigger kitchen and more working tops.
05/16/2016	52476003	All the equipment works, scales for every person/group working together, better pans..
05/16/2016	52475889	Better supplier Enough equipment
05/16/2016	52475391	More advanced equipment and lecturers who can take full advantage of that equipment.
05/16/2016	52475799	Modern and useful equipment to produce chocolate shapes and sculptures
05/16/2016	52475255	New equipment and equipment for all the students
05/16/2016	52473500	I would like to find no time wasters. Only people who want it, 3 years of hard work covering all material including plating trends and expert advice on how to tackle things like competitions, to simple yet disturbing things like verbal breakdowners during the place of work. Even though Malta is not known for its outstanding wages in this industry, people shouldnt just work hard for what they earn, nor repeat over and over what their ancestors have buildt for them without progress. True chefs are born with passion and love for what they do. All in all, equipment found in most hotels or kitchens so as students will feel at home anywhere knowing how to manage every device. I would like to find more moulds, exotic fruits, gluten free area work space, accessible glassware in which to make fancy mouses etc. In without having to beg for them. Bigger blast chillers, plate trolleys, more mould variety, larger workspace, more measuring scales!!!!
05/16/2016	52474785	more felxibility i guess. flexibility when it comes to the choices of cuisine, ingredients, and overall more modern equipment to fiddle around with. ALSO, I would like to stress the importance of having competition within the student body to enchanche the creativity and competitive edge of students also, to push and inspire them to create more innovative things.
05/16/2016	52474890	Better equipment Any type of equipment used for pastry only Better quality of ingredients
05/16/2016	52474786	I would like to find good experience Iecleraturts to teach us well and what is modern cuisine and I wish to be in a small environment of kitchen
05/16/2016	52474877	Ample space to work in combined with modern equipment and use of modern techniques
05/16/2016	52474712	all equipments are available for students and modern equipments to see new things
05/16/2016	52472019	nothing much as long as the equipment is in use and being taken care of
05/16/2016	52471800	Enough equipment for the students to use especially for individual classes.

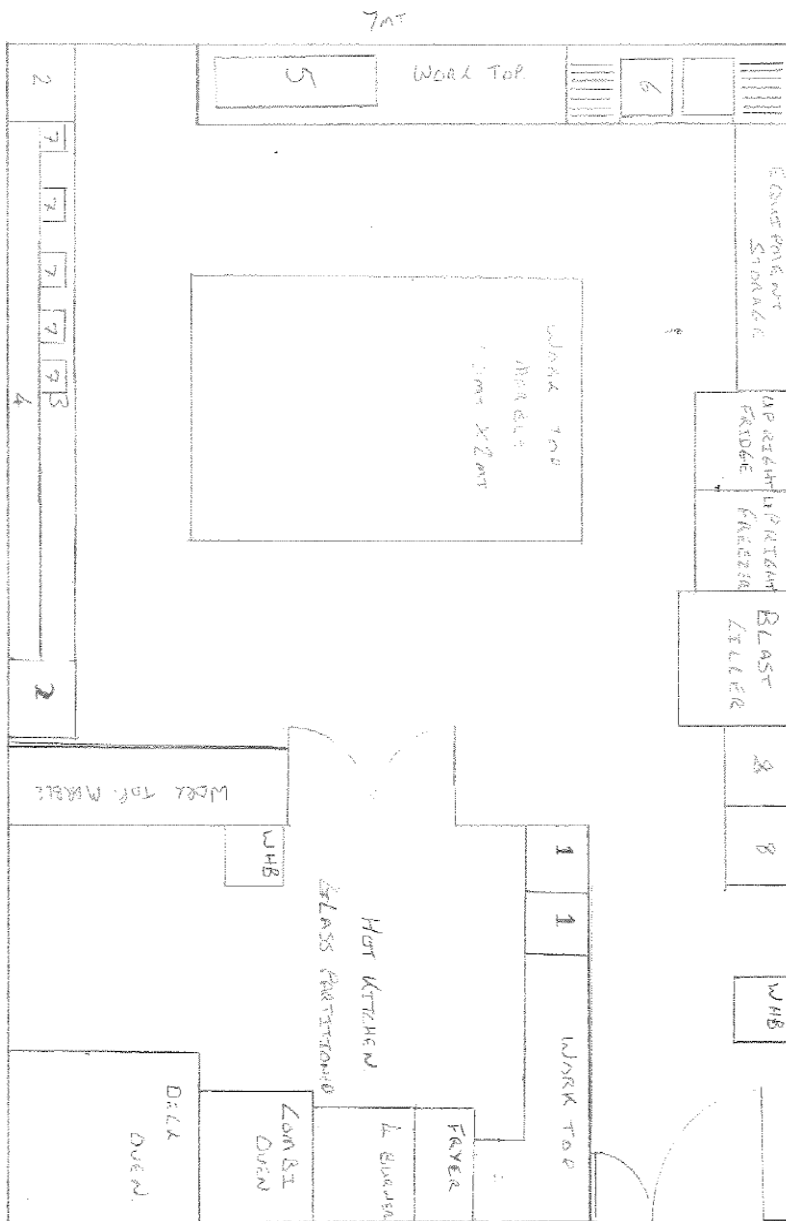


8.2 Pastry department Floor plan as proposed.

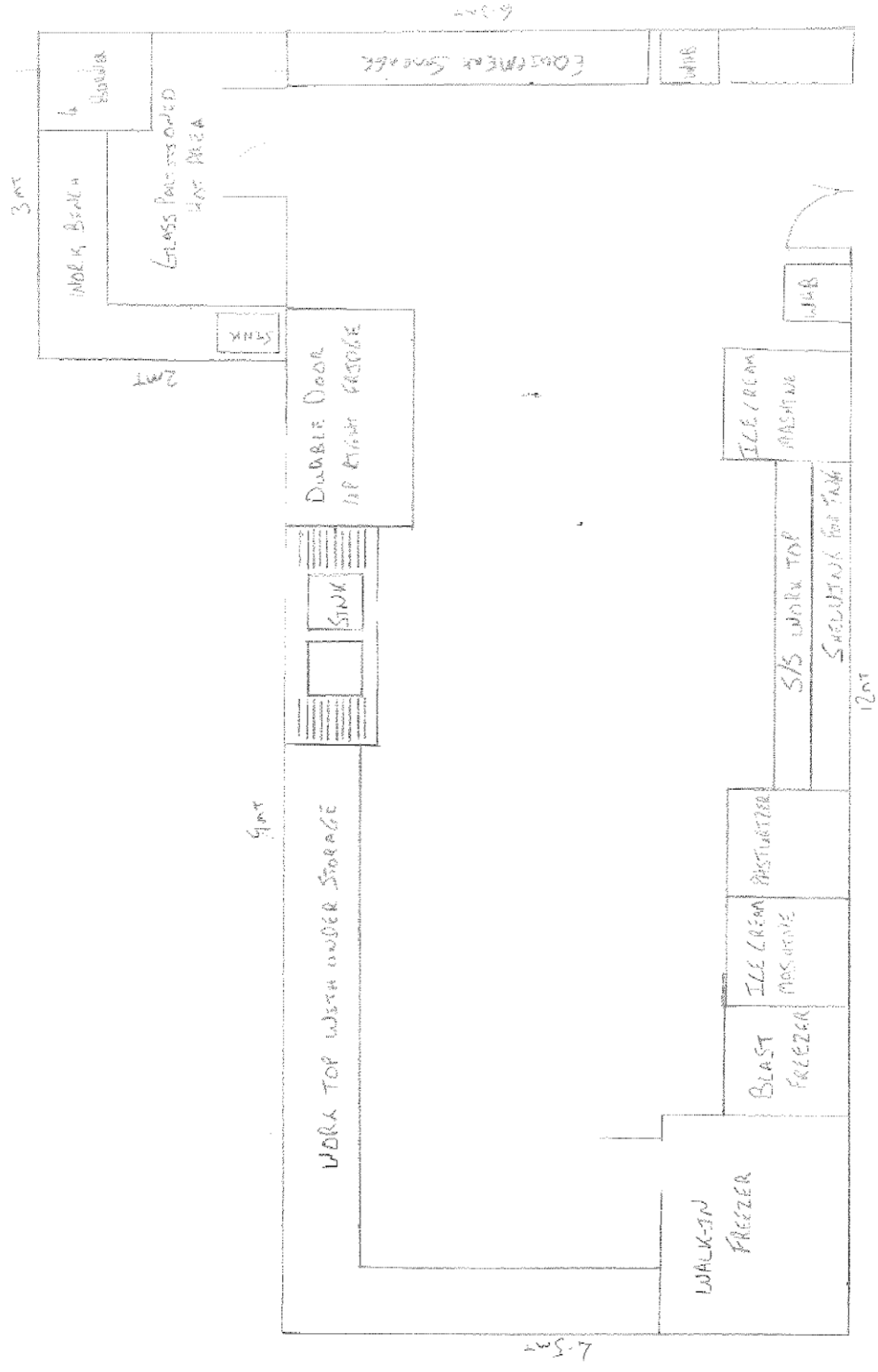


8.3 Pastry kitchen plans.

- 1 ROLLERS ROWS TEAM
- 2 LARGE ROLL PLASTERED MIXER
- 3 WORK BENCH WITH FLOUR BIN AND SIEVES (COFFEE METER)
- 4 TOP FREEZER WITH GENERAL STORE (INGREDIENTS)
- 5 TABLE TOP DOUGH SHEETER
- 6 SYM
- 7 SMALL KNEADERS MIXERS MOUNTED (LEFT)
- 8 AUTOMATIC THERMOMIX MOUNTED



1 & 2 Confectionery production kitchens.

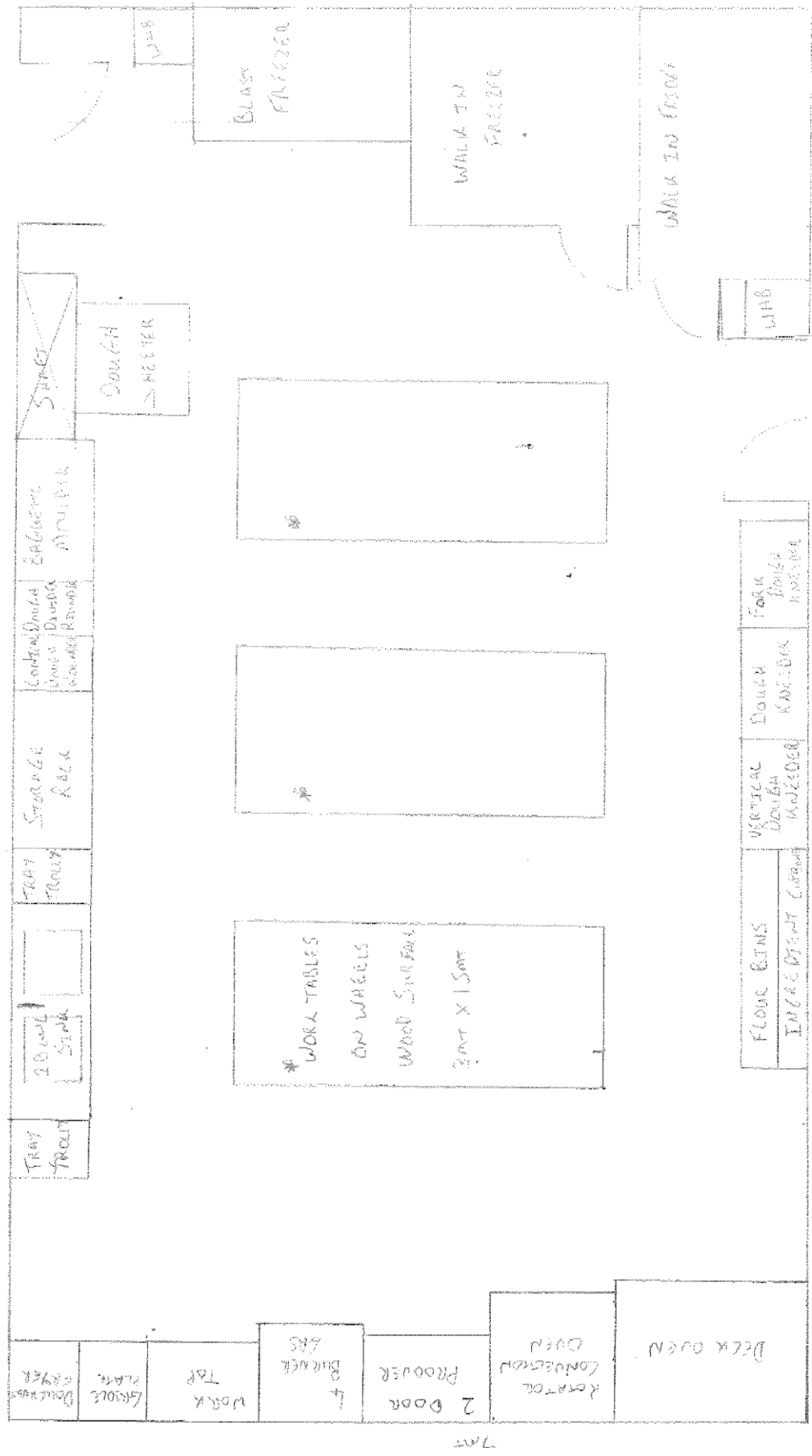


Ice Cream Room

Scale 2:100

3 Ice Cream production kitchen

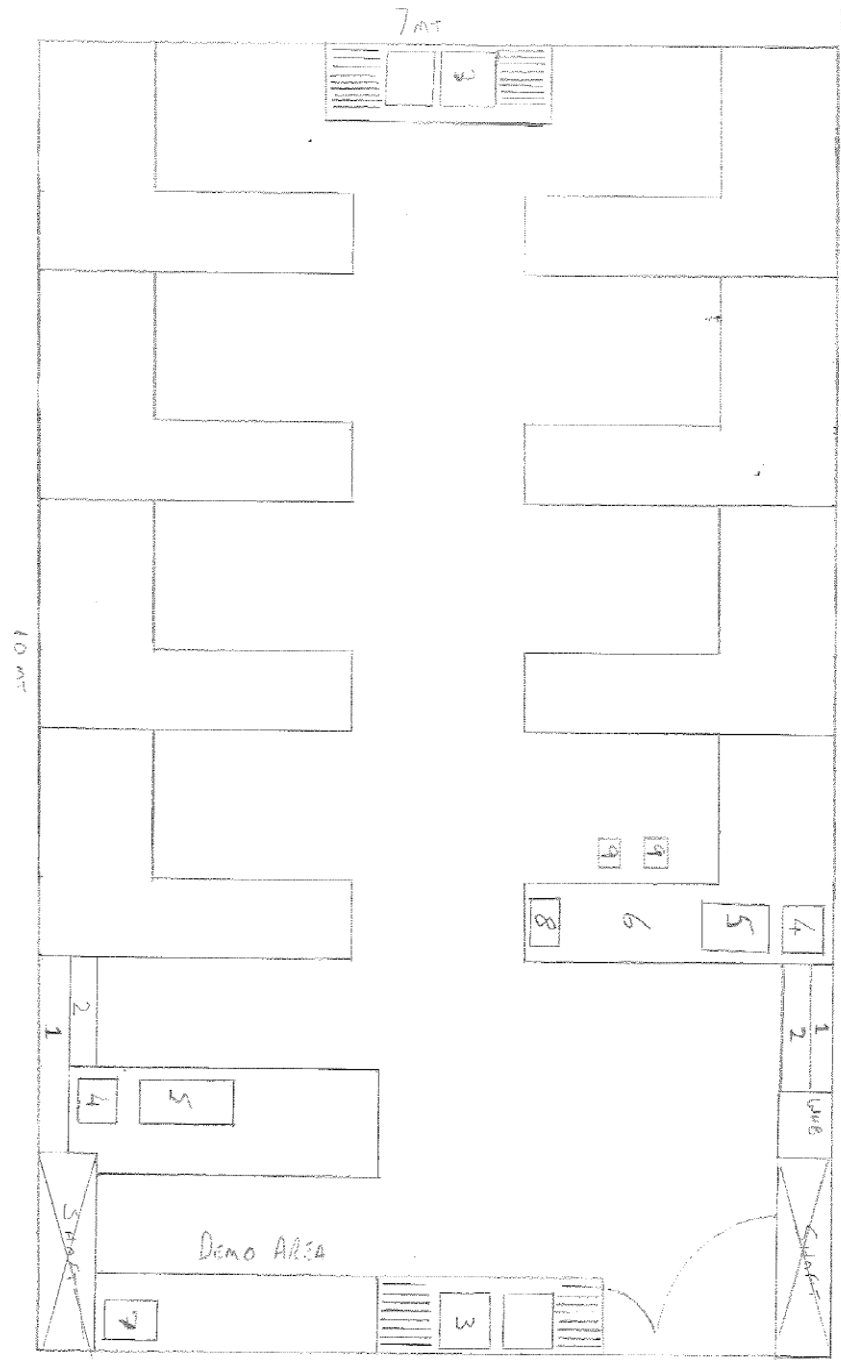
4 Bakery Kitchen



BAKERY KITCHEN

SCALE 2cm : 1m

- 1 TOP SHELVES FOR STORAGE OF INGREDIENTS
- 2 TABLE WITH BOOTH SEATING
- 3 COMMON STOVES (TO BE USED BY ALL)
- 4 INDUCTION TOP WITH HEAT LAMP FOR SUGAR WORK
- 5 MARBLE WORKTOP WITH UNDERCOUNTER STORAGE FOR ALL THE TOOLS REQUIRED
- 6 MIXER/SHRUBBLE
- 7 SINK/STOVE (WUB)
- 8 BAR STOVES FOR ICE CREAM/ICE CREAM DEMONSTRATIONS

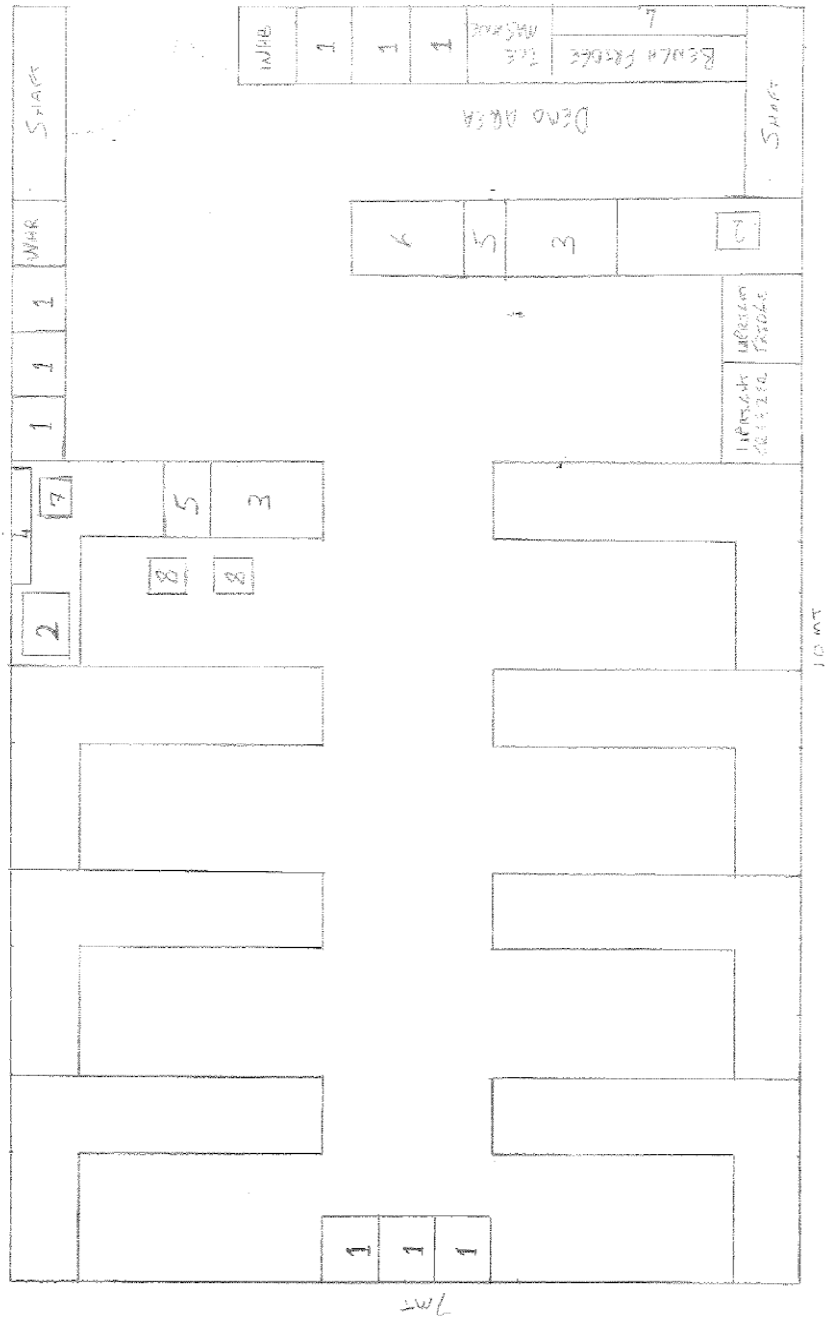


CAKE DECORATING & SUGAR CRAFT LABORATORY

SCALE 2cm : 1m

5 Cake Decorating & Sugar Craft Kitchen

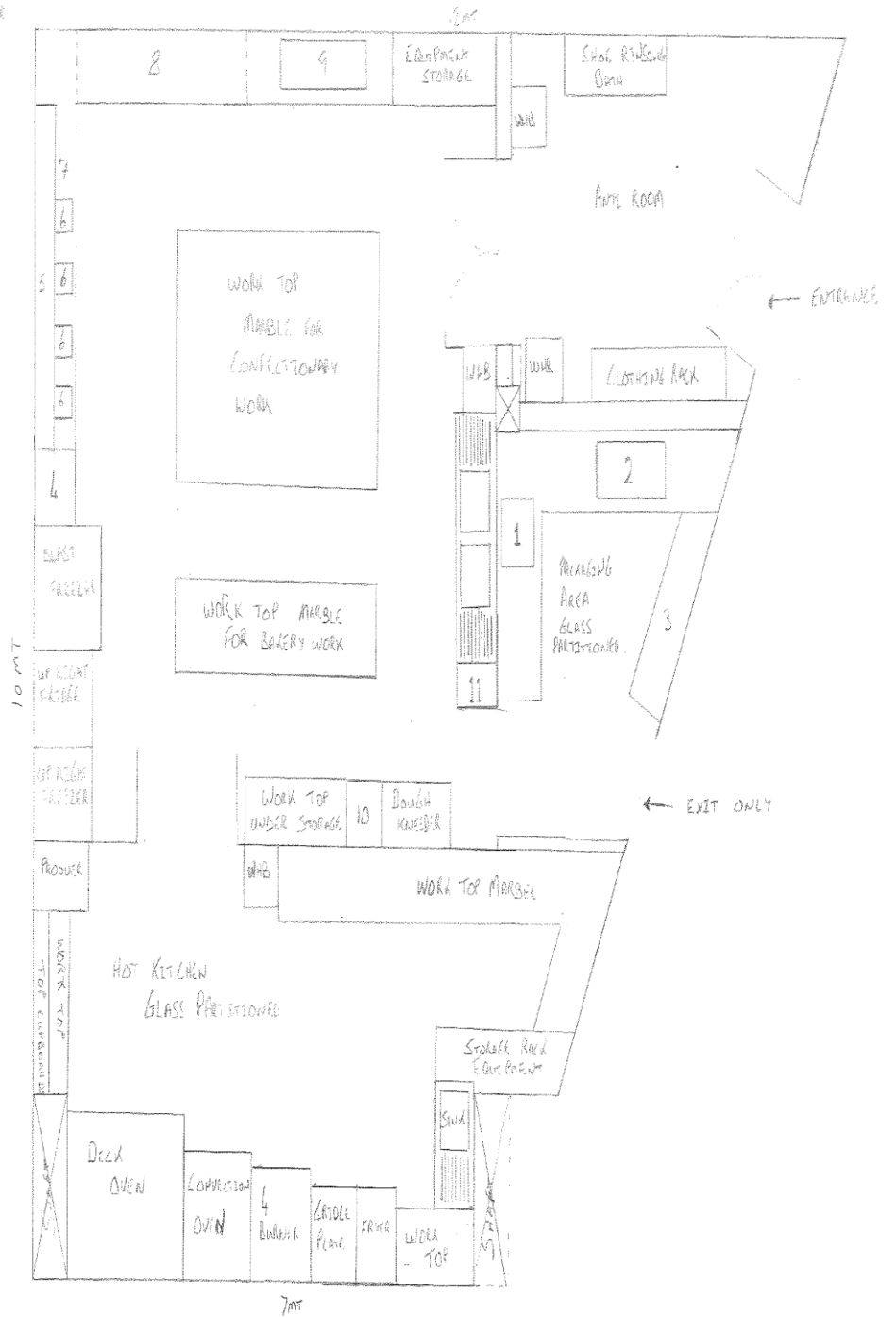
- 1 TEMPERING MACHINES
- 2 SINK
- 3 UNDER BENCH FRIDGE SINGLE DOOR 60x40 size Door
- 4 TOOL STORAGE TOP LABBOARD
- 5 TRAY RACK UNDER BENCH 60x40 TRAY
- 6 SPRAYING LABINES WITH UNDERNEAT HOT LABBOARD.
- 7 INDUCTION HOB
- 8 BAR STOOLS TO BE USED DURING DEMONSTRATIONS



CHOCOLATE LABORATORY

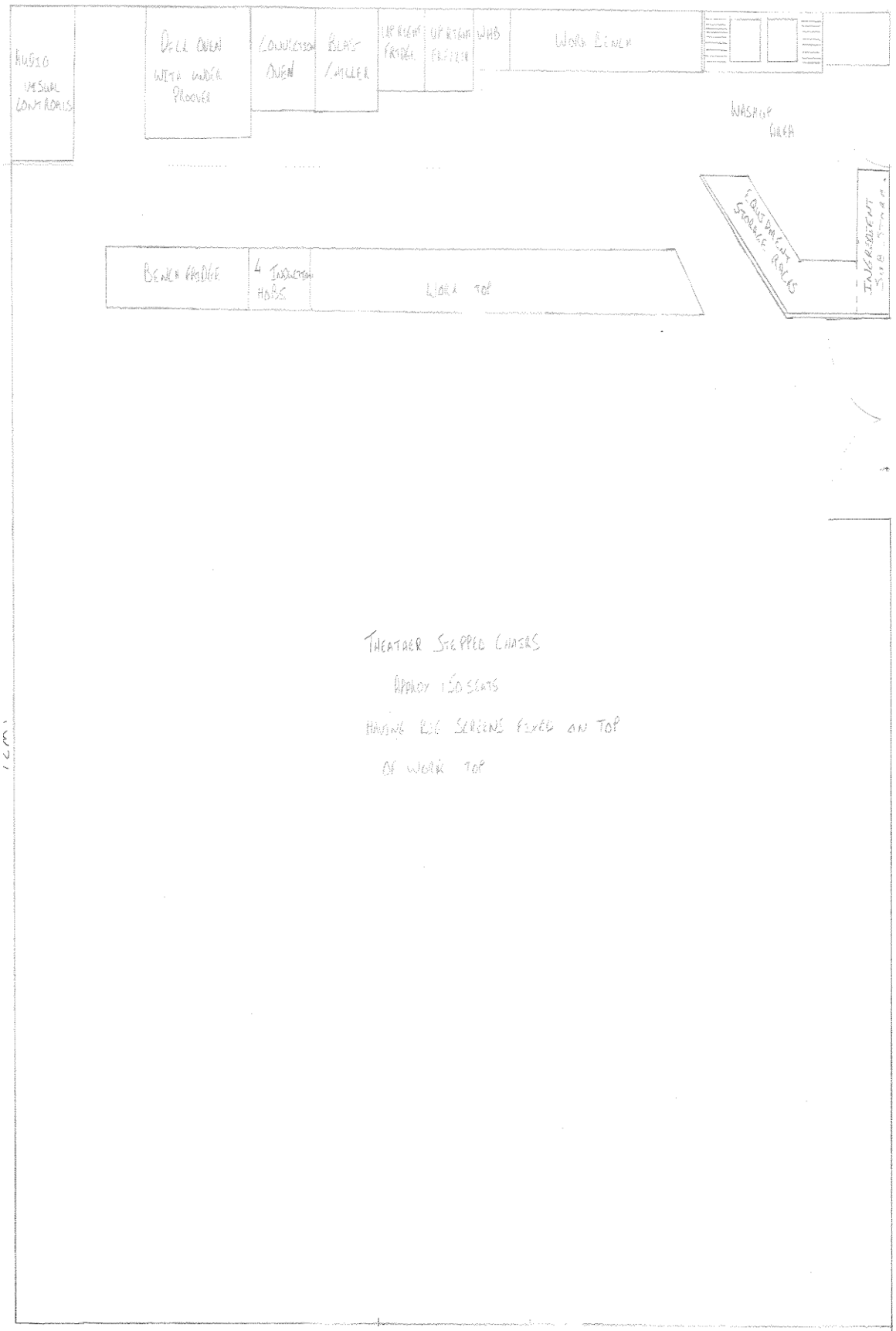
DATE: 11/11/11

- 1 WALK PACKING MACHINE
- 2 REWINDING MACHINE
- 3 STORAGE RACKS
- 4 LABEL IDLER DEMOSITRY MOWER
- 5 TOP SUPERIOR W/SHR KITCHEN SUB STOR: (IMMIGRANTS)
- 6 SMALL PLASTIC MEXERS 3 SET
- 7 WORK TOP WITH UNDER STORAGE
- 8 BENCH PADGE WITH MARBLE TOP
- 9 TABLE TOP DOUGH SHEETER
- 10 DOUGH DIVIDER/SAMPLER
- 11 TRAY TROLLEY BAKED SSIC



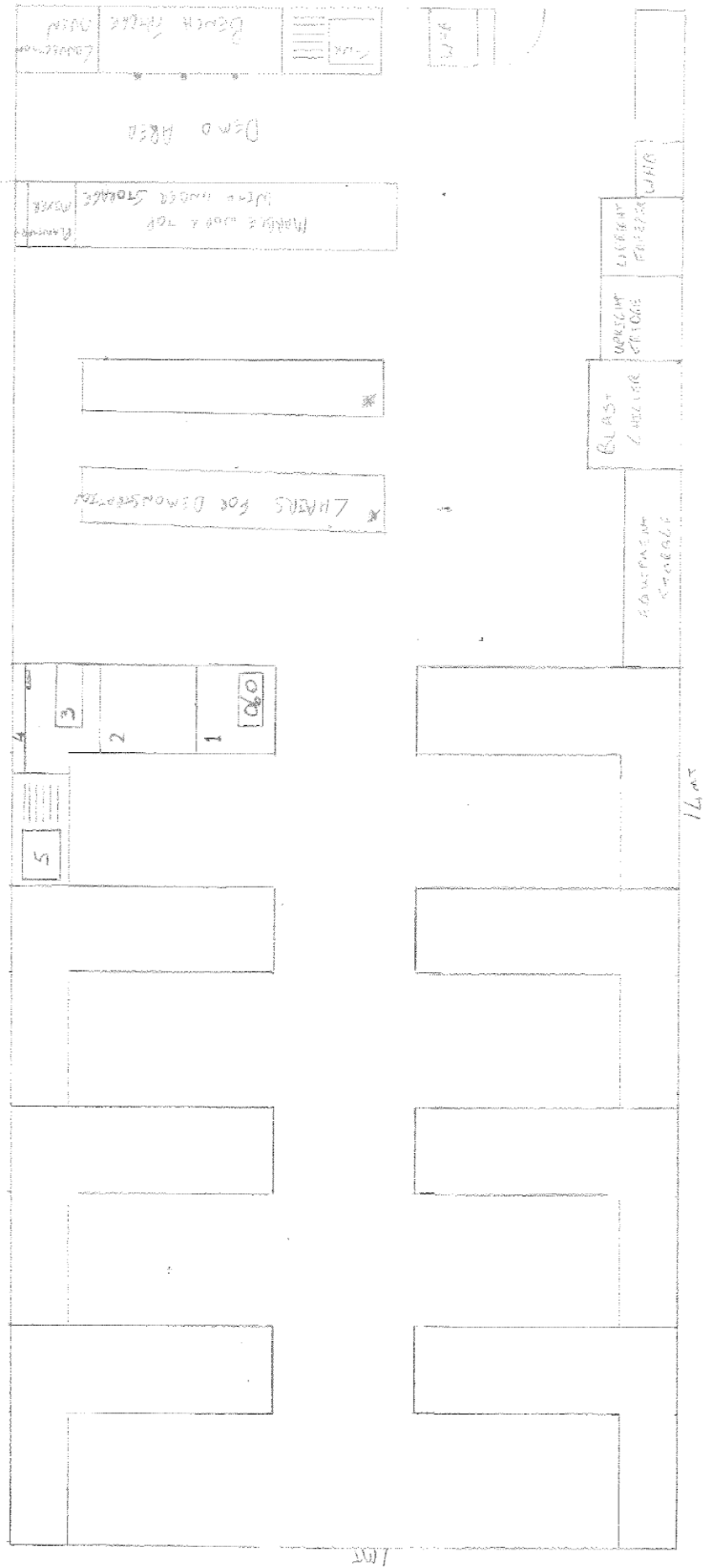
ALLERGENS KITCHEN

Sc



14 Kitchen theatre

- 1 UNDER BENCH CONNECTION OVEN
- 2 UNDER BENCH SINGLE DOOR FRIDGE
- 3 PLANTARY MEWER
- 4 STORAGE RACK FOR EQUIPMENT
- 5 SINK
- 6 PORTABLE INDUCTION HOBS TO BE USED.

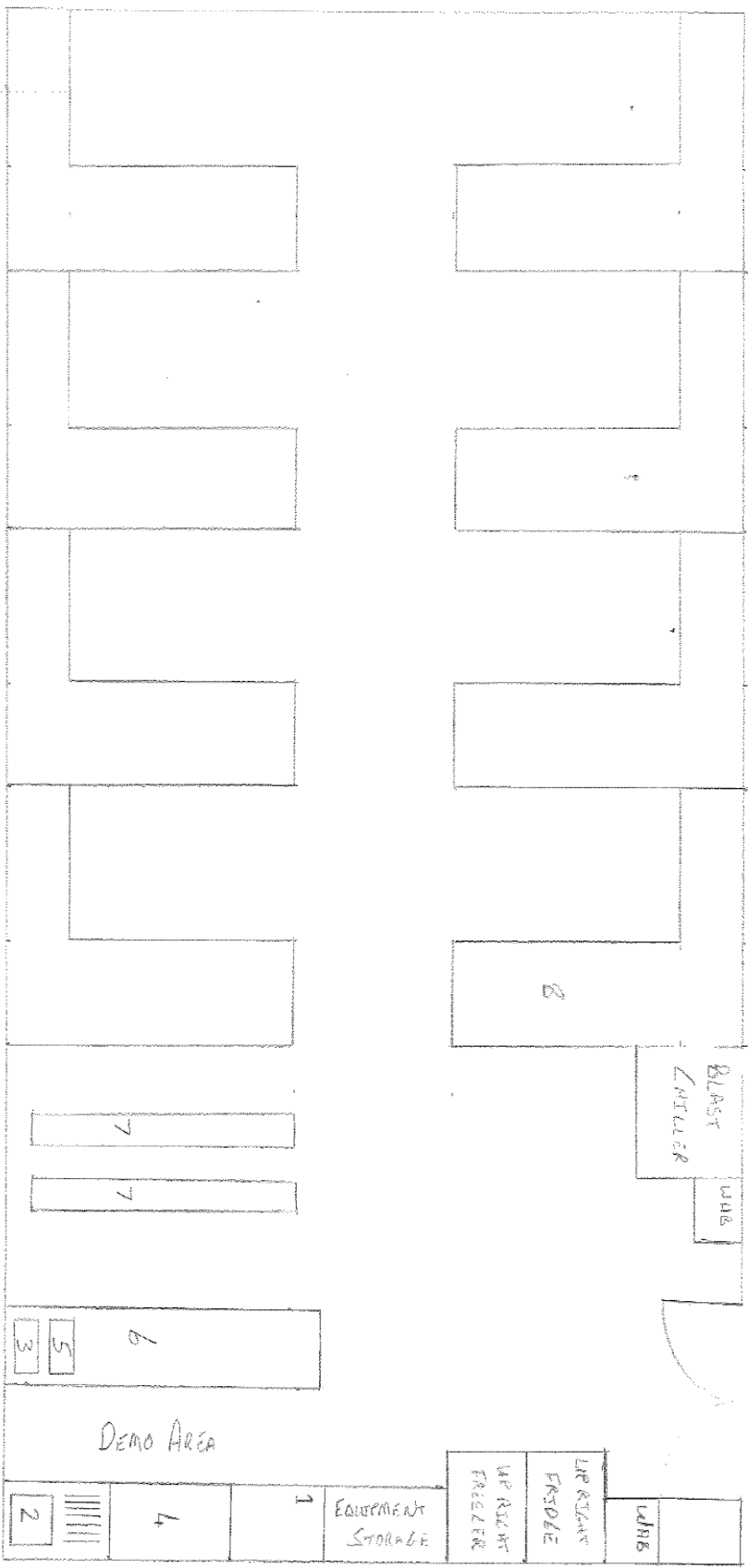


INDIVIDUAL KITCHEN 3.

SCALE 1:500

15 Individual kitchen No. 3

- 1 CONVECTION OVEN and WORK BENCH
- 2 SINK
- 3 PLANITARY MIXER
- 4 BENCH FRYER
- 5 PORTABLE INDUCTION HOBS
- 6 PORTABLE HOOD FOR COFFEE UNDER STORAGE
- 7 BENCHES FOR OPERATIONS
- 8 INDIVIDUAL APPLIANCES AS PER DIAGRAM 1 & 2

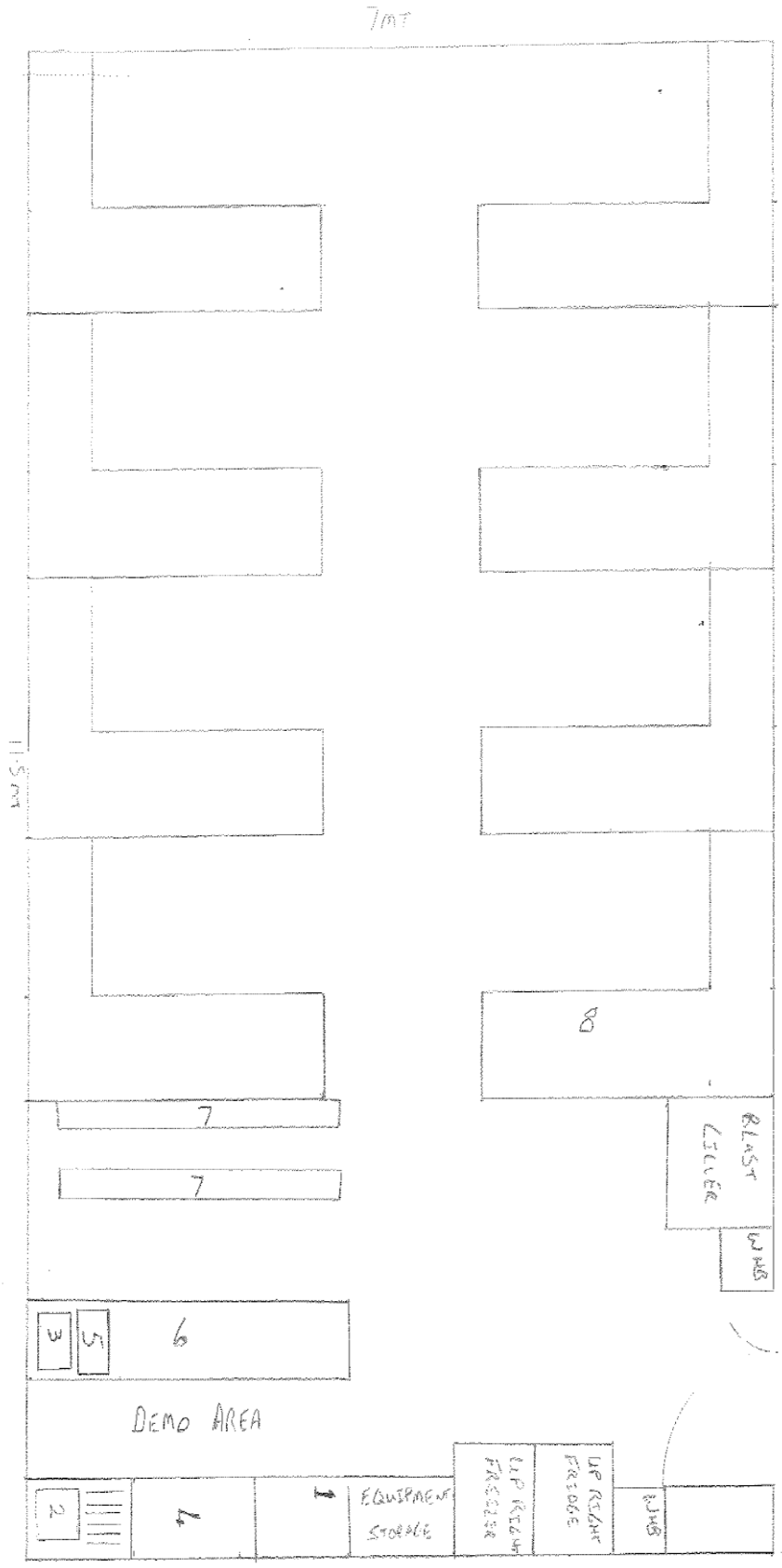


INDIVIDUAL KITCHEN 2

SCALE 2c

16 Individual Kitchen No. 2

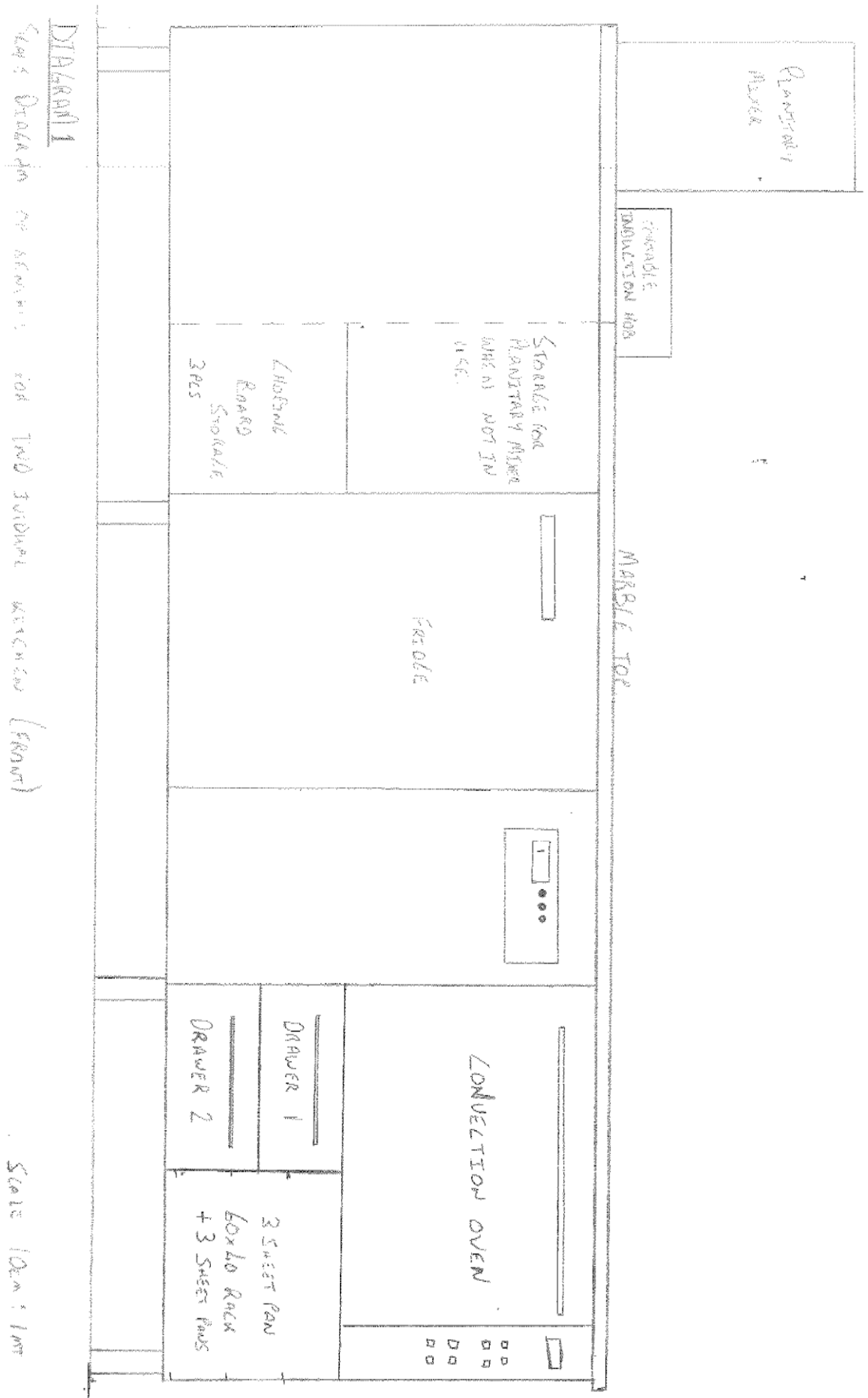
- 1 CONNECTION OPEN ON WOOD BENCH
- 2 SINK
- 3 PLASTIC PIPE
- 4 BENCH FRIDGE
- 5 PORTABLE INDUSTRIAL HOBS
- 6 BENCHES FOR OVENSTOVEZONES
- 7 INDIVIDUAL BENCHES AS PER DIAGRAM 182



INDIVIDUAL KITCHEN 1

SCALE 2:1

17 Individual Kitchen No.1



Front bench diagram for Individual Kitchens 1, 2 & 3

- SHELVES
- BRACKET BRACKETS
 - 2 SETS OF 1/4" DIA. NAILS
 - 2 Pcs. RAKEWOOD STAIN 30X30X1
 - 2 Pcs. WIRE RACKS
- SHELVES 2
- 1 LOWER PAN
 - 3 1/4" STAINLESS STEEL PANS
 - 2 1/4" STAINLESS STEEL PANS
 - 10 Pcs. PLASTIC CONTAINERS
 - SPONGES FOR INDIVIDUALS AND

- DRAWER 3
- 1 Set ROUND CORNERS
 - 1 LEAD FIRM ROLL
 - 1 FORT. ROLL
 - 1 BRASS SHEET ROLL
 - 4 Pcs. SAUCE SPOONS
 - 1 Pcs. HAND BLENDER

- BOARD SINK TO THE WALL WITH THE FOLLOWING TOOLS STOCK AND SET:
- ROLLING PIN
 - HAND WISK X 2
 - PLASTIC SCRAPPER
 - METAL SCRAPPER
 - PLASTIC SPOONS X 2
 - OFFICE KNIFE
 - BREAD KNIFE
 - MCA SHIRT TIE X 3
 - PERFORATED SPOON
 - SMALL HIGH KEMG
 - LARGE HIGH KEMG

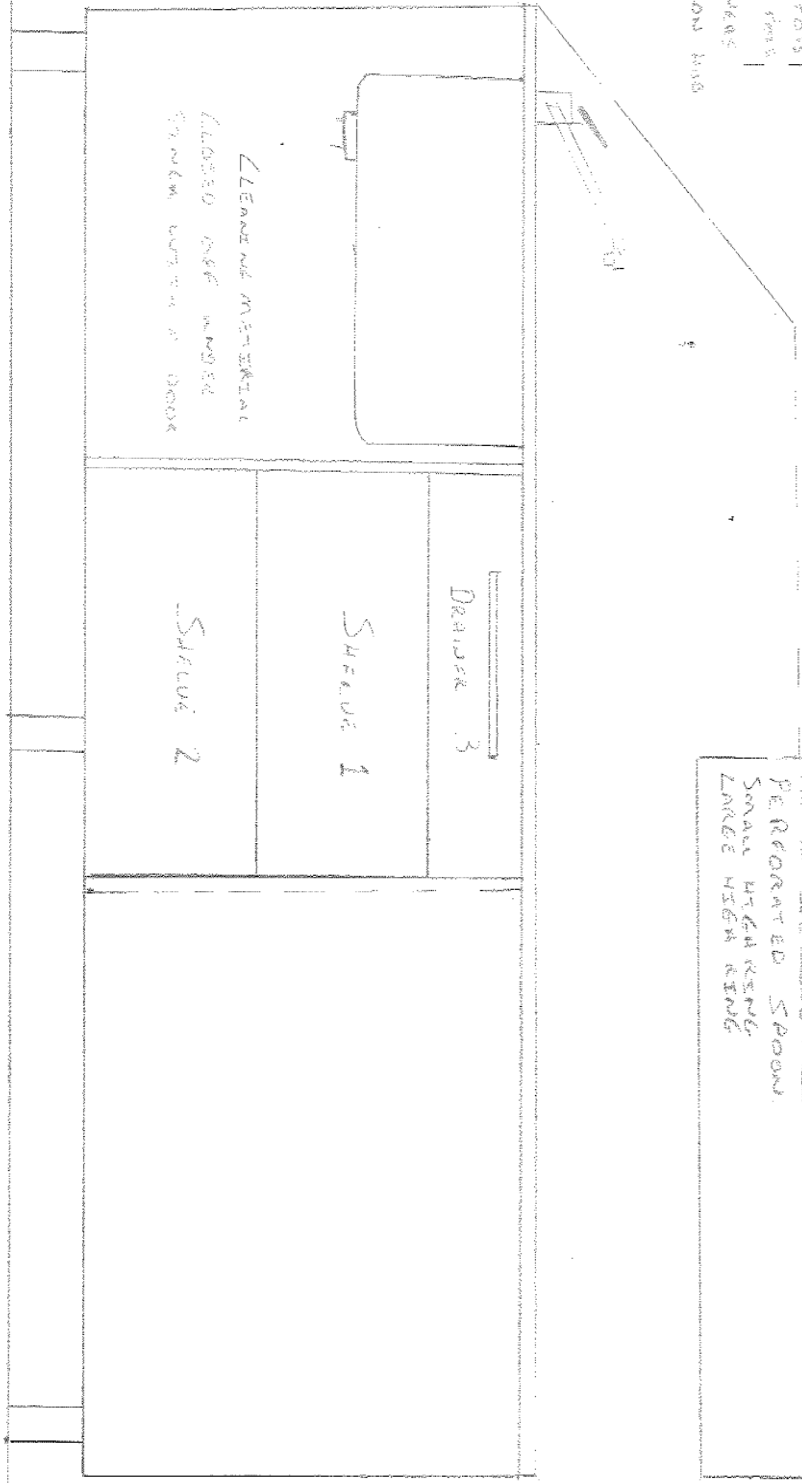


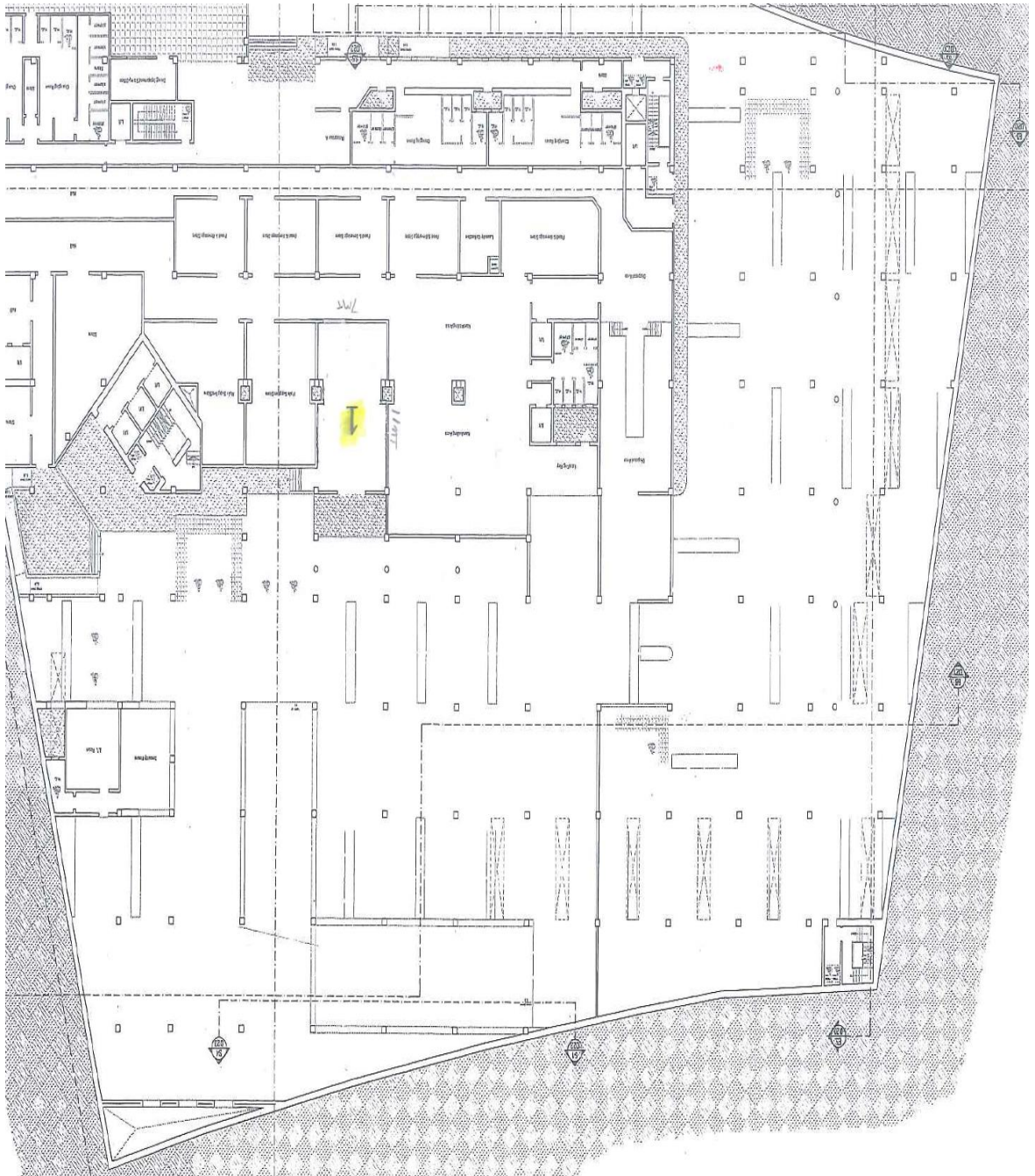
DIAGRAM 2
SCALE DIAGRAM

AS ANSWERS FOR INDIVIDUAL KITCHEN (SIDE)

SCALE

Side bench diagram for Individual Kitchens 1, 2 & 3

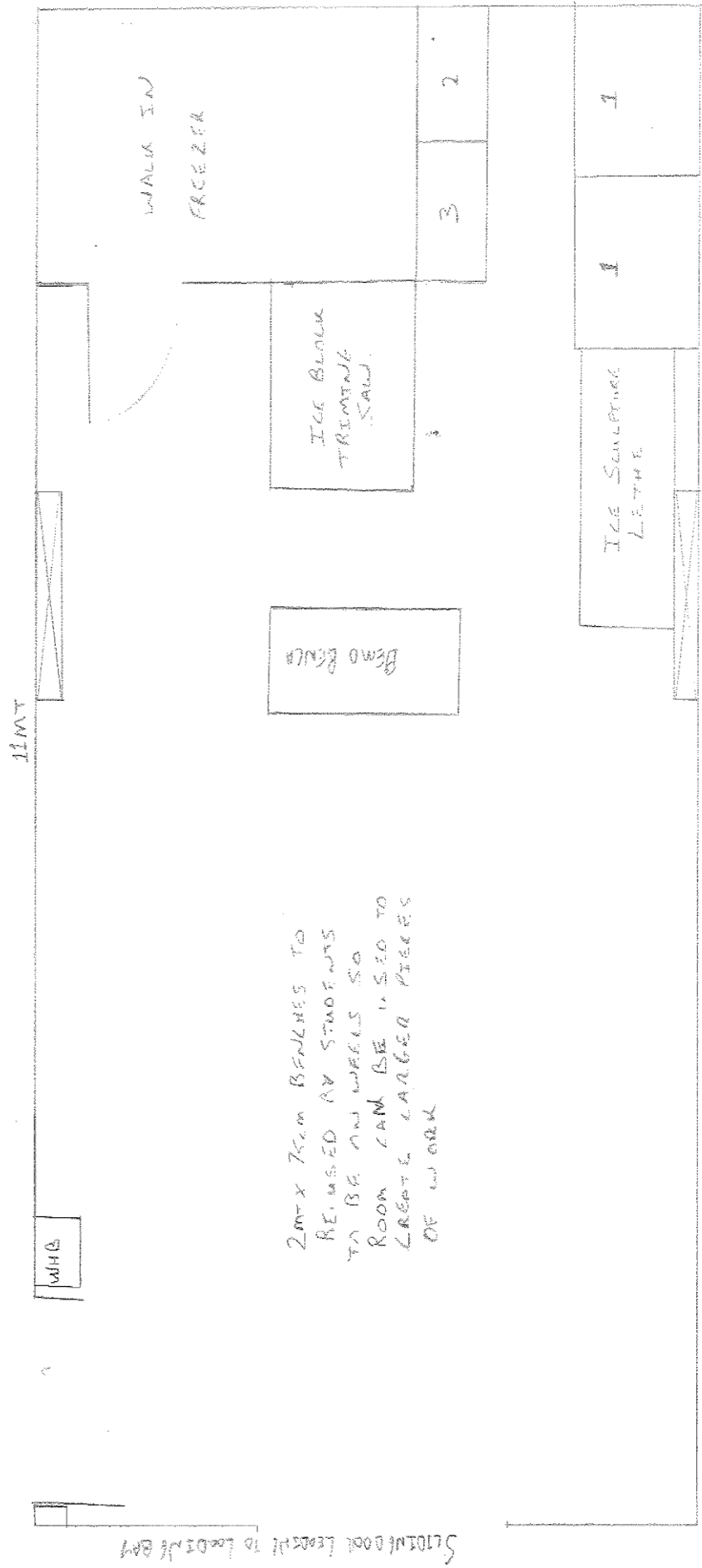
8.4 Level -1 Floor plan (ice carving room area)



1 Ice carving Room floor plan

- 1 CARVING BLOCK MAKER.
- 2 CARVING BLOCK HOIST
- 3 ICE BLOCK MOWER

Ice Carving room.



ICE CARVING ROOM

Scale 2cm: 1m