III. PLAN AND PROCEDURE

The methodology pertaining to the study on, **"Accessibility and Adaptability of Limb Prosthesis–An Ergonomic Concern**" is channelized under the following broad headings:

A. Investigatory Study

B. Field Research on Prosthesis Users

C. Ergonomics in Rehabilitative Process

D. Satisfaction Derived

E. Issues on Accessibility and Adaptability of Prosthesis

A. Investigatory Study

An investigatory study is a type of field survey where the required information from the concerned sector is obtained by investigating details about the particular sample using specific methods.

A study on any subject of high significance to the society essentially necessitates doing an in – depth study on the topic under consideration. The topic being a very delicate issue involving the hurt sentiments of the prosthetic users, basically amputees, survey which gives data for a prolonged period and one that can fundamentally support the ethos of the endeavor was felt imperative. In order to justify that a research study on this topic is of great importance, both on the prosthesis users' and the fabricator's side, this survey was found to be very significant. With this backdrop an investigatory study was undertaken. Hence this part of the study was streamlined to include the following two phases eliciting concrete facts about the issue.

1. Phase I: The Amputee Population Scenario: This part of the study comprised of:

1.1. Selection of Area and Sample: Coimbatore district, in Tamil Nadu, South India was the broad area selected for the study. Presence of popular hospitals dealing with orthopedic problems and surgery coupled with willingness on their part to disclose permissible data became the sole reason for selection of the area. Four hospitals and three Prosthetist Centers were selected as sample from where the necessary information was collected adopting purposive sampling. A sample design is a definite plan for obtaining a sample from a given population. It refers to the technique or the procedure the researcher would adopt in selecting items for the sample (Kothari and Garg, 2015). Sampling refers to the statistical process of selecting and studying the characteristics of a relatively small number of items

from a relatively large population of such items, to draw statistically valid inferences about the characteristics of the entire population (http://www.enotes.com/homework-help/what-sampling-what-different-methods-sampling-1540
57). Convenience sampling is used in exploratory research where the researcher is interested in getting an inexpensive approximation of the truth. As the name implies, the sample is selected because they are convenient. This non probability method is often used during preliminary research efforts to get a gross estimate of the results, without incurring the cost or time required to select a random sample (Walonick, 2015). Discretion of the sample to disclose essential facts without any prejudice to their clients/ patients for prosthesis was considered. Clients were informed about the nature and need for the study. Ethical clearance (Exhibit-8) and permission from the Directors/ Managing Partners of these Joints were duly obtained (Annexure- 1). Enough assurance to keep up the confidentiality of the clientele was ensured.

1.2. Selection of Method and Mode of Collecting Data: The Directors and Managing partners of the chosen hospitals/ prosthetic centers were approached at leisure, need of the study and purpose behind it, the social element to be precise, was explained and the data collected on a long term basis. The method entailed receiving secondary data **about amputation done or amputees visited** from their register of Records, coupled with overt observation of the clients visiting the premises, of course done with the knowledge of the concerned authorities. Secondary data is information that is collected for a purpose other than to solve the specific problem under investigation (Saravanavel, 2009). A secondary source is one that summarizes information from primary sources. Secondary data is the data that have been already collected by and readily available from other sources. Such data are more quickly obtainable than the primary data and also may be available when primary data cannot be obtained at all (http://www.managementstudyguide.com/secondary_data.htm).

Observation is purposeful, systematic and selective way of watching and listening to an interaction or phenomenon as it takes place (Kumar, 2011) and a favorable method used in behaviorism. Overt observations refer to the researcher being open about their intentions in the field and ensuring all members of the group are aware of what is happening. This type of observation allows the researcher to be honest with the participants, thus avoiding problematic ethical issues such as deception or lack of informed consent. Furthermore, it also prevents the researcher from becoming over-familiar with the participants and 'going native'; therefore, aiming to keep the observation objective and free from bias.

INSTITUTIONAL HUMAN ETHICS COMMITTEE

Avinashilingam
Institute for Home Science and Higher Education for Women
University
(Estd. u/s 3 of UGC Act 1956)

30th March 2015

To
Dr. Saraswathi, V.
Department of Resource Management
Avinashilingam Institute for Home Science and
Higher Education for Women
Coimbatore – 641 043

Dear Madam,

Ref : Your presentation of the proposal No. IHEC/14-15/RM/01 entitled "Accessibility and adaptability of limb prosthesis – an ergonomic concern" on 6th March 2015

In continuation with the submission of the necessary documents by you, the Institutional Human Ethics Committee of our University hereby grants approval to your research proposal No. IHEC/14-15/RM/01 entitled "Accessibility and adaptability of limb prosthesis – an ergonomic concern" submitted by you. The Approval number for the same is AUW/IHEC-14-15/FHP/RM-01.

We wish you all the best in your research endeavours.

Regards,

30/3/15

Dr.P.R.Padma
Member Secretary

Institutional Human Ethics Committee

Exhibit-8. Ethical Clearance

Consolidation and Analysis of Data: Necessary information was collected personally by the investigator every week – end and recorded by her. This further buttressed the issue of confidentiality promised to the information providers. Details collected from recorded data for the preferred period of study projected the following as presented in Table I.

Table: 1. Registered Cases of Amputees

Year of study	Total number of amputees	Gender wise number of amputees	
		Male	Female
2009	1072	885	187
2010	846	730	116
2011	677	585	92
2012	715	580	135
2013	416	373	43
Total	***3726***	***3153***	***573***

From the data obtained it was clear that within a span of five years the amputations registered for treatment in the sample hospitals and Centers numbered 3726, comprising 3153 men and the rest women. This statistic being quite agonizing, an advanced study on the matter, especially on the site of amputation was taken up.

2. Phase II: Site of Amputation: This aspect of the study elicited details on the following lines:

2.1.Selection of Area and Sample: The same area and sample satisfied for this part of the study too as the information obtained needed to be genuine and first hand.

2.2. Selection of Method and Tool: Recording of secondary data was again resorted to. The tool used was a structured checklist. A checklist is a type of informational job aid used to reduce failure by compensating for potential limits of human memory and attention (https://en.wikipedia org/wiki/Checklist). The mode of collection used was the same, by browsing through the records maintained by the selected sample and recording the necessary data. As the endeavor was focused on studying prosthesis users, the second phase was channelized to obtain **details on amputees with lower limb amputation**. Hence the sample of amputees chosen from the records was purposive. Purposive selection of samples depends more on the researchers' deliberate choice (Bhattacharyya, 2009). Obtaining

information from specific target groups rather than from those who are most readily or conveniently available is purposive sampling (Sekaran and Bougie,2011).

The checklist (Appendix I) contained queries limited to the locus or site of amputation, the socio – economic details of the amputees and the reasons for amputation, the details of which are presented under Chapter IV. For obvious reasons, the data collected on lower limb amputees alone is presented here under Table.

Table: 2 Lower Limb Amputees among Total Amputees

Year of study	Total number of lower limb amputees	Gender wise number of amputees	
		Male	Female
2009	394	331	63
2010	588	502	86
2011	480	404	76
2012	529	416	113
2013	322	270	52
Total	***2313***	***1923***	***390***

Among the total 3726 amputees, 2213 (62%), were found to be lower limb amputees with 1923 (83%) male and the rest female patients – quite a large number within a span of five years recorded by the selected hospitals/ prosthetists alone. If the statistic is culled out from all known sources, the number would project a very big picture – a heavy number. These facts set the stage for furthering the study, thought of on the chosen line.

The details on both the scores, explained under the Tables, were received for the successive years too to enable the investigator to give a broader spectrum on the agonizing scenario of the amputee/ prosthetic user population. Statistical analysis to test association of variables was done. The test formed the basis for including variables in formulating the tools of the succeeding study. The findings are discussed under Chapter IV.

B. Field Research on Prosthesis Users

When data collection is based on primary data, it is also called as **field research** (Vinod, 2006). Therefore this part of the study included the following stages in the collection of required data:

1. **Biomechanical Aspects of Prosthesis**
2. **Functional Capabilities of the Prosthetic Users**

1. Biomechanical Aspects of Prosthesis

Biomechanics is the study of mechanical laws and their application to living organisms, especially the human body and its locomotor system. Biomechanical principles

regarding the lower limb prosthesis fabrication highlight the fundamental rules to be applied to the socket construction, components assembly in the assembly stand, and the static and dynamic assessment of prosthesis. A properly constructed and adjusted prosthetic device is a key to the reintegration of the patients into their family, social, and working environments (Rajťúkov et al., 2014). This section of the study was streamlined to chalk out details on the following lines.

1.1 Selection of Area and Locale: The same locale and area selected for the first half of the study sufficed for this aspect too.

1.2 Selection of Method, Tool and Sample: The method selected for the study was direct personal interview. Kvale (1983) defines the qualitative research interview as an interview, whose purpose is to gather descriptions of the life-world of the interviewee with respect to interpretation of the meaning of the described phenomena. Collecting these descriptions can be done in several ways, of which face-to-face interviews are the most common. Face to face interview are characterised by synchronous communication in time and place, affording the advantage of social cues. Social cues, such as voice, intonation, body language etc. of the interviewee can give the interviewer a lot of extra information that can be added to the verbal answer of the interviewee on a question (Opdenakker, 2006). Face to face interview facilitated getting first hand information on the topic.

The tool used was unstructured interview schedule. Unstructured interview are characterised by a flexibility of approach to questioning. They do not follow a system of pre-determined questions and standardized techniques of recording information. The interviewer is allowed much greater freedom to ask, in case of need, supplementary questions or omit certain questions if situation so requires (Kothari and Garg, 2014) and the method automatically involved overt observation. Observational research (or field research) is a social research technique that involves the direct observation of phenomena in their natural setting. Of the three types of observational research, overt observation was chosen as the researchers identify themselves as researchers and explain the purpose of their observations to the samples without deceiving them (https://en.wikipedia.org/wiki/ Observational_techniques). The **prosthetic team** from the three selected **Centers** comprised the sample for the study. The method involved putting questions to the technicians, the samples in the chosen centers on the aspects stated overleaf.

1.3. Rehabilitative Process - Sequence Adopted: Rehabilitation of people with disabilities is a process aimed at enabling them to reach and maintain their optimal physical, sensory, intellectual, psychological and social functional levels. Rehabilitation provides disabled people with the tools they need to attain independence and self-determination (http://www.who.int/topics/rehabilitation/en/).

> Disability connotes any restriction or lack of ability to perform an activity in the manner or within the range considered normal for a human being resulting from impairment (Sunder, 2010)

The prosthetic centers were found to be responsible to prescribe the correct rehabilitative processes to the concerned clients. The **centers being the fabricators of this human- machine interface,** the so called prosthesis, data was collected from them. As this is concerned about the concepts related to satisfying the **fitness protocol** for prosthesis – fitting - the technicians or experts in the three selected centers were met at leisure in their respective premises. By virtue of the permission sought earlier from the Management / authorities and on the stronghold of having obtained ethical clearance to collect pertinent data from these sources, gathering necessary information on the fitness protocol for prosthesis was quite easier. The interview schedule framed for the study requested details on the sequence followed in fitting the prosthesis for clients using open ended questions (Appendix II). This enabled fitting in queries that were more or less situation specific and more relevant to the process explained. The sequence followed in conduct of the study included:

- ***Socket types recommended***
- ***Suspension patterns suggested***
- ***Alignment methods practiced***
- ***Components added to enhance satisfaction***
- ***Benefits accrued from different types***

Details on all the above matters were collected for the 142 samples (Those out of 150 who had filled in the Schedule), who were the clients benefiting from the services of these centers. Frequent visits to the centers enabled collection of the required data. Permissible photographs were also taken. **Permission to use web references to understand the procedure was obtained**. The data obtained was analyzed, consolidated and is presented under Chapter IV.

2. Functional Capabilities of the Prosthetic Users

Primary data regarding the personal experiences of prosthesis users was required to comprehend the nature of trauma and agony they endured sequel to an amputation. Primary data is one containing the full research report, including all details necessary to duplicate the study (Bordens and Abbott, 2007). Primary data are those which are collected afresh and for the first time and thus happen to be original in character (Kothari and Garg, 2014). Hence this part of the plan and procedure was drafted to comprise of the following

2.1. Selection of Locale: Coimbatore city which proved to be housing a considerable population of prosthetic users being evident, this research area was chosen for the study adopting convenience sampling. It is a method where the selection of the sample is left to the researcher who is to select the sample. It is also called "accidental sampling" because the respondents in the sample are included merely because of their presence on the spot (Bhattacharya, 2009). An initial survey done and information gathered through hospitals/ prosthetic Centers focused on the presence of almost ten centers dedicated to cater to the needs of the amputees for their prosthesis fabrication. From among them, three centers that were quite popular and were willing to extend cooperation in conduct of the study were chosen adopting purposive sampling. Instead of obtaining information from those who are most readily or conveniently available, it might sometimes become necessary to obtain information from specific target groups. Purposive sampling confines to specific types of people who can provide the desired information, either because they are only ones who have got it, or conform to some criteria set by the researcher (Sekaran and Bougie, 2011). These centers being locales, unlike retail showrooms, where clients visit only when felt necessary, collection of data took considerable time, **almost two years**.

2.2. Selection of the Sample: Sampling is the process of selecting a few from a bigger group to become the basis for estimating or predicting the prevalence of an unknown piece of information, situation or outcome regarding the bigger group. It is a subgroup of the population that a researcher is interested in (Kumar, 2011). The data obtained from the sources in mid 2014 (a 18 month study period), revealed the presence of 2486 amputees comprising 2148 men and the rest women victims – the losers through lower limb amputation. The data also revealed reluctance from the side of women amputees to go in for prosthesis. In 2013 - 2014, there were 225 men and 48 women who had willingly consented to get fitted with an artificial limb. Hence a total of 150 amputees – a mixed

group – were chosen for this part of the study adopting convenience sampling. Sample is a smaller representation of a large whole (Saravanavel, 2008). Convenience sampling is a non-probability sampling technique where subjects are selected because of their convenient accessibility and proximity to the researcher (https://explorable.com/convenience-samling). An earnest desire among the samples to share personal experiences, timings when they were available, readiness expressed by Centers to permit to do the survey during busy hours, especially when the samples had been visiting for consultation, possibilities for meeting them at a later date and the like aided in selection of the sample.

2.3. Selection of Method and Tool: The method selected for the study was face to face interview coupled with observation. Interview is a verbal method of securing data especially in the field research connected with the social problems. It is a direct method of enquiry. According to William Emory, personal interviewing is a two day purposeful conversation initiated by an interviewer to obtain information that is relevant to some research purpose, quotes, Saravanavel, (2009). Face to face interviews can establish rapport and motivate respondents. Rich data can be obtained and help the researcher read non verbal cues (Sekaran and Bougie, 2011). Observation is one way to collect primary data. It is a purposeful, systematic and selective way of watching and listening to an interaction or phenomenon as it takes place (Kumar, 2011).

The tool used was a semi – structured interview schedule. Interviewing is a commonly used method of collecting information from people. According to Monette et al (1986) an interview involves an interviewer reading questions to respondents and recording their answers (Kumar, 2011). A semi-structured interview is a method of research used in the social sciences. In a structured interview the rigorous set of questions does not allow the researcher to divert, while a semi-structured interview is open, allowing new ideas to be brought up during the interview as a result of what the interviewee says. The interviewer in a semi-structured interview generally has a framework of themes to be explored (https://en.wikipedia.org/wiki/Semi structured interview). The schedule framed requested details on the socio – economic profile, data on amputation, adjustments made in daily activities and living styles and the like. Their perception on the stressful event and the stressors were also deduced. The schedule was pretested on three prosthetic users of long standing experience. A very important part of the questionnaire construction process is its piloting, known as pretesting. Pretesting is a very important step in survey research. It is an

absolutely necessary step to ensure all kinds of errors that are associated with survey research are reduced and thereby helps to improve the quality of data significantly. Pretesting is done on a small sample of respondents from the target population (http://onlinelibrary.wiley.com/doi/10.1002/9781444316568.wiem02051/abstract). Based on the light of the pilot study, necessary modifications were effected and the schedule was finalized. A model of the schedule is presented under Appendix III (A).

2.4. Conduct of the Study and Presentation of Data: The samples were met during their leisure ensuring that the activities of the Centers were not disturbed by any score. The objectives of the study were explained and the schedule was administered after creating enough rapport with them. Assurance of confidentiality further helped in collecting and recording genuine data. Majority felt at ease to disclose their experiences by the sheer fact that they had in the investigator a person honestly interested in projecting their plight to the society which many at times keeps a blind fold vision towards them.

The documented data was consolidated, analyzed and the findings are presented under Results and Discussion. The findings were analyzed based on their satisfaction derived for the components/ domains of affective, cognitive, temporal and ergonomic (physical) parameters. The measures adopted to tackle (manage) stress and crisis was also found out.

C. Ergonomics in Rehabilitative Process

Ergonomics is the design and engineering of human-machine systems for the purpose of enhancing human performance (Dempsey, 2000). It is a discipline that seeks to maximize safety, efficiency and comfort by shaping the design and operation of the technology to the physical and psychological capabilities and social needs of the user (Noyes, 2001). This part of the study, therefore, included documenting details on the following aspects:

1. **Vignette on Prosthetic Centers**
2. **Anthropometry Vs Prosthetic fit**

1. Vignette on Prosthetic Centers: This aspect of the study is illustrated under:

1.1 Selection of Area and Sample: Coimbatore City was the broad area selected for the study. A micro level study around the city focused light on the existence of umpteen number of prosthetic centers run by all orthopedic specialty hospitals apart from numerous private centers fabricating on their own and free limb providers including Government hospitals and

NGOs who obtained prosthesis from a common center. Presence of many freelancers also was found out. From the groups available, **three private Centers** (fabricators) were selected adopting purposive sampling. Purposive sampling or judgmental sampling is one that provides the best information to achieve the objectives of the study. Researcher can choose people who have the required information and be willing to share it for the study (Kumar, 2011). The most sought after ones as evident from an informal enquiry of the practitioners guided the study route to approach them. Above all, the centers agreed to share relevant information regarding fabrication processes, procedural aspects and the fabrication details of prostheses. Hence these samples were selected. The centers were found to be located in the heart of the City – easily approachable by all .

1.2 Selection of Method and Tool: The method selected was the case study. Case study is a systematic way of helping researcher to learn from experience (Bhattacharyya, 2009). A case study is a detailed investigation of a single individual or group. Case studies can be qualitative or quantitative in nature, and often combine elements of both. The defining feature of a case study is its holistic approach—it aims to capture all of the details of a particular individual or group, which are relevant to the purpose of the study, within a real life context **(**http://www.nationaltech center.org/index.php/products/at-research-matters/case-study/). The tool used was an interview guide coupled with observation. An interview guide is a list of topic questions as areas which the interviewer uses merely as a prompter during the interview (Saravanavel, 2008). Observation is the active acquisition of information from a primary source. People can be observed in their natural environment and their behavior can be noted and recorded (Sekaran and Bougie, 2011). The interview guide, presented in Appendix IV, along with other factors in an open ended format elicited details on years of establishment, years of experience in the field, materials used, type of prosthesis fabricated, socket, suspension, other components prescribed and alignment technique adopted and the like. Data was collected during their leisure and the details are presented under Chapter IV. This enabled locating efficient services available for those in need of prosthesis.

2. Anthropometry Vs Prosthetic Fit

Literature search on an extensive scale had brought to light the adoption of three different practices for locating the alignment before fitting the artificial limb, namely, bench, static and dynamic. The techniques used differed entirely. The time and cost involvement also differed.

Taking measurements for the alignment to ensure optimum fit and gait to balance properly and propel selves (the amputees) was studied while the measurements were recorded for patients. This step in the rehabilitative process being an important segment deciding the success of a perfect fit for the users, precision was practiced by all centers in the way they felt correct. Necessary photographs were taken to substantiate the explanations. Obviously, this part of the study comprised of the following steps:

2.1 Anthropometric Measurements of the Selected Sample: Anthropometry is the branch of human sciences that deals with body measurements, particularly with measurements of body size, shape, strength, mobility and flexibility and working capacity. Human beings are variable (in dimensions, proportions and shape, as in all other characteristics), and user-centered design requires an understanding of this variability (Pheasant and Haslegrave, 2006). Anthropometry of the concerned individuals, especially the limb length, foot length and stump length are of vital significance in deciding the fitness protocols. To this effect, the details recorded for 100 amputees (samples) who **had approached the most popular Center** (among the three selected) for prosthesis fit in 2014 – 2015, was collected. The sampling method adopted was evidently, convenience, as it refers to the collection of information from members of the population who are conveniently available to provide it (Sekaran and Bougie, 2011). Cooperation extended to observe while taking measurements for amputees for prosthetic design was the single encouraging factor for taking up this aspect of the study. The three pertinent measurements, namely, limb length, foot length and stump length – of the selected samples, being taken for the said purpose was observed and recorded. The information was documented in a structured checklist presented under Appendix V.

2.2 Alignment Fixing Technique Adopted: The technique adopted by the center to fix alignment for the selected samples was learnt from the technicians who measured them of the samples – a participatory ergonomic approach. Observation of the technique brought to light the precision and the focus required for successfully fitting prosthesis. The findings also highlighted the significance of stump length to stability parameters of donned prosthesis. Frequent visits to the centers also helped to understand the steps, material requirements, equipments and tools necessary and the set up needed to run such joints.

2.3 Consolidation and Presentation of Data: The findings of this part of the study was analyzed for range – specific measurements, identifying the category with optimal or

limited stump length, nature of component factors thought of, sample group come for refit, reasons for the same and the like and are presented under Chapter IV. Further, the data was statistically analyzed to understand relationships using correlation and regression (Annexure-2)

The three aspects studied exposed the scenario of amputation on a micro level, status of amputees, willingness from and process undergone for prosthetic fit and data on service providers. The following section of the study aims to identify the degree of satisfaction felt with its use and factors pointing to prospects for accessibility and adaptability of the same.

D. Satisfaction Derived: Anything that is used by human beings is expected to satisfy some basic needs of the users. Prosthesis, for instance, has to bring satisfaction in use to amputees as their living standards and the quality of the meaningful living is largely dependent upon that. Hence the satisfaction derived by the selected sample from the artificial limbs fitted on them was drawn out by administering the listed test batteries on them as given below:

1. **Perceptive Evaluation of the Fitted Prosthesis**
2. **Overall Evaluation of the Prosthesis**

1. **Perceptive Evaluation of the Fitted Prosthesis:** This aspect of the study comprised of the following steps:

1.1. Selection of Sample and Procedure: The amputees selected for the field survey, evidently became the sample for this part of the study too, as perceptions on the limb worn by them only was the subject dealt with. Perhaps, also because, they could only give first hand information on the same. At the end of the interview schedule (Appendix-III B) an opinionnaire on the sample's perception on prosthesis was attached, enabling collection of data on both the scores to be done at a stretch. An opinionnaire is a form containing a list of statements, each of which the members of a selected group are asked to endorse or reject; the purpose being to gather information for a survey (https://en.wiktionary.org/wiki/opinionnaire;https://www.wordnik.com/words/opinionnaire).
This was planned also to ensure gathering data from the same candidates as approaching them later was impossible. The cooperation extended by the centers alone facilitated meeting the samples.

1.2. Data Collection and Analysis: The list of statements requested sharing the sample's feelings on phantom feel and pain, stump conditions like presence of scar, fluid drains and

pain. Considering the nature of facts collected, those pregnant with sensitive issues, delicate handling had to be practiced. Such an obligation forced the investigator to collect details personally and record data. The findings of the study are discussed under Chapter IV.

2. Overall Evaluation of the Prosthesis: Quality of living of individuals though is dependent on stated parameters, the perception of an individual on the way he accepts and adapts to living situations also count in a large measure. Naturally, the study has to involve basically the same locale and sample. Keeping these facts in mind eliciting pointers of satisfaction as evinced by them was felt necessary which guided the study on the following lines:

2.1. Selection of the Tool: The tool decided for culling out their perceptive views was a rating scale. A rating scale is a set of categories designed to elicit information about a quantitative or a qualitative attribute (https://en.wikipedia.org/wiki/Rating_scale). For guidance a standard rating scale (PPA and LCI) designed by Grisé and Gauthier-Gagnon in 1993 was referred to. Prosthetic Profile of the Amputee (PPA) scale designed to evaluate the prosthetic use of the person with lower limb amputation in terms of weekly frequency of prosthetic wear and functional level of prosthetic use after discharge from the rehabilitation center was referred .More importantly, the PPA elicits information on the factors predisposing to reinforcing and enabling use or nonuse. The Locomotor Capabilities Index (LCI) designed to trace a comprehensive profile of ambulatory skills of the lower limb amputee with the prosthesis and to evaluate their level of independence while performing these activities was also counted on. The LCI refers to questions of the PPA but could also be used independently (Gauthier-Gagnon and Grisé, 2006). In this study the prosthetic users were found to use it on a daily basis, not once in a week.

Based on the guidelines given for formulating a scale to suit the purpose of the study and after incorporating certain major criteria recommended by WHO for achieving satisfying quality of living (QoL), the rating scale was drafted on a four point scale. The scale included pointers to check the sample's feelings of satisfaction on various factors like details on prosthesis, their liking for the fitted one, problems encountered, suggestive options, social and family acceptance as perceived by them and the like (Appendix VI).

2.2. Administering the Scale: The Scale was administered on the sample stating the purpose of the study very distinctly and their responses to individual queries were recorded as first hand information. The exercise proved a let out for the sample to vent their genuine, realistic feelings. The responses given for the statements were tested using ranking

analysis. The data obtained was consolidated and is presented under Results and Discussion.

E. **Issues on Accessibility and Adaptability of Prosthesis**: Science and technology has opened up many options for those in need of an artificial limb. Nevertheless accepting one in their life style solely vests in the hands and hearts of the needy group. Interplay of several factors feature in an individual's mind set influencing acceptance or rejection of the fitted appendage. This necessitated finding out details on the following as given overleaf

1. **Motivators to Accept the Prosthesis**

2. Amputees Opted for Refit

3. Issues on Accessibility and Adaptability of Prosthesis

Details on all the above aspects were designed as inextricable components such that they will in no way harm the sentiments or emotions of the sample, in all the tools used in a very discrete manner, such that the samples would respond in real earnest and disclose only the truths behind it. Such an endeavor further aimed at understanding the behavioral concepts/ attitudinal changes, family and social adjustments made, living/ working facilities desired and value orientations evidenced in and by the samples who had taken to the challenges of living with prosthetic limbs. The entire data was presented and analysed as a SWOC analysis.

The information gathered was consolidated and is delineated under Chapter IV. The plan and procedure adopted is presented as a diagrammatic representation in Exhibit -9

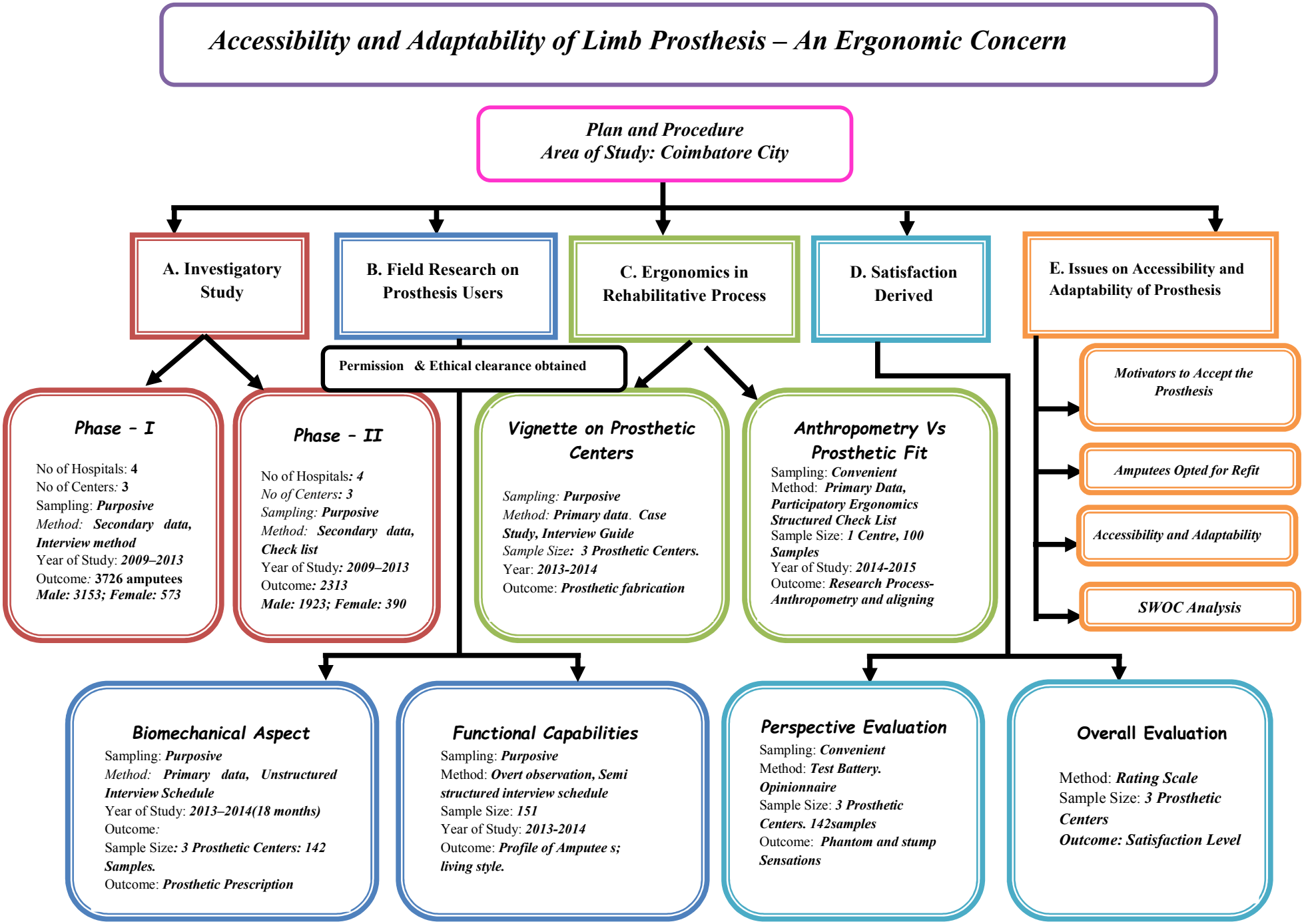

Exhibit-9
Diagrammatic representation-Plan and Procedure