



## Guidelines for Doctor in Philosophy (Ph.D.)

Higher education and research constitute the backbone of University system, which create the qualified manpower to meet the demand for Industrial, Agricultural and Social Development. Therefore the research carried out by higher education institutes should be of high standard and beneficial to the society. Research activities should be carried out in an ideal, healthier and intellectual atmosphere and must yield the desired result. To achieve this rules and regulations governing activity assumes prominence. The application for Ph.D. registration shall be addressed to Dean Centre for Research. Matters relating to research activities shall come under the purview of Dean Center for Research. Dean - Center for Research is empowered to send letters/ reminders to examiners for valuation of thesis, fixing viva-voce etc. All routine matters of Ph.D. registration and admission, payment of fees etc shall be administered by our Representative around the world / Dean Centre for Research directly. The student shall pay all fees relating to tuition, research etc through the Study Center / Research Centre to Newport University CED.

### CATEGORIES OF ADMISSION

Candidates will be admitted to the Ph.D. program of the University under any one of the following categories:

- (a) Regular full time Scholars with or without Institute fellowship or with project support.
- (b) Research scholars who are staff members of the Independent Institute / Research Center.
- (c) Research scholars under the external registration program sponsored by and employee in industry/organization having R & D facilities or employed in research/analysis jobs in public sector/ private sector/ Government.

*(A research scholar under the external registration program will normally carry out part or all of his /her research work in the industry/ organization/national laboratories/universities employing the scholar under the supervision of a guide or co-guide also employed in the same organization)*

### ELIGIBILITY

The minimum educational qualifications for admission to the Ph.D. Program of the University are as follows:

#### Ph.D. in Engineering

- (a) Candidates with a Master's degree in Engineering/Technology with a good academic record or a Master's degree by Research in Engineering/ Technology disciplines, with a good academic record.
- (b) Candidates with Master's degree in Science with a good academic record and of exceptional merit are eligible for the relevant Engineering discipline and two years' experience after the Master's degree. The requirement of experience may be waived by the Selection Committee.
- (c) Candidates with a 4 years Bachelor's degree in Engineering/Technology with a good academic record and having 5 years' experience after the Bachelor's degree.

#### Ph.D. In Science

Master's degree in Science with a good academic record or equivalent qualification tenable for the current year in the relevant area. Master's degree in Engineering/Technology is eligible with a good academic record.



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### **Ph.D. in Management**

Master's degree or equivalent PG Diploma or Associate ship in a relevant discipline, and a Bachelor's degree with a good academic record OR Five year integrated master's degree / dual degree or equivalent in a relevant discipline with a good academic record.

### **Ph.D. in Humanities and Social Sciences**

Master's degree in an eligible discipline with a good academic record or equivalent or equivalent qualification tenable for the current year in the relevant area.

### **Ph.D. in Medical/Para Medical/Nursing Sciences**

(a) Candidates with a Master's degree in Medical Science / Paramedical Science / Nursing with a good academic record.

(b) Candidates with a 4 years Bachelor's degree in Medical Science / Paramedical Science/ Nursing with a good academic record and having 5 years' experience after the Bachelor's degree.

### **SELECTION PROCEDURE**

Eligible candidates possessing the minimum prescribed educational qualifications and satisfying additional criteria set by the University from time to time will be called for an Interview and Entrance Test at the respective Study Centers / Independent Institute / Research Center. The Entrance test shall be of objective type.

Based on the academic record and the performance of the candidates in the test, the Academic Head of the Study Center / Independent Institute / Research Center will recommend to the Dean Center for Research through The Country Representative, the names of candidates found suitable for admission to the Ph.D. Program.

If the candidate possesses M. Phil degree in the subject related to Doctorate, he/she shall be admitted directly. Such candidates will be exempted from taking the entrance examinations. However, for teachers working in Institution shall be admitted for Ph.D. directly.

### **ADMISSION**

(a) Candidates whose selection is approved by the Dean Center for Research will be admitted to the Ph.D. program after payment of prescribed fees.

(b) Ordinarily, a candidate is not eligible for re-registration for Ph.D. after cancellation of his/her earlier registration for any reason. Based on the merits of the individual case and taking into consideration any special circumstances, a candidate may be considered for re-registration.



## **CHOICE OF GUIDE**

Guides shall be allotted by the Study Center / Partner Institute / Research Center from Members of NUCED Panel of Academicians. However, if the students desire to work under a particular guide of his/her choice, the same guide will be approved by NUCED as a Member of Panel of Academicians subject to fulfilling the university norms and will be allotted to the student. There shall be not more than two guides for a research scholar.

## **INTERDISCIPLINARY**

In the case of interdisciplinary research, the candidate shall have two guides and one of them shall be primary guide and the other co-guide. All applications for interdisciplinary research shall have certificates from there respective guide that the subject is interdisciplinary.

## **ELIGIBILITY FOR BEING GUIDES**

A guide shall be an active researcher with a Ph.D. or higher qualification with at least 3 years of PG teaching experience after PhD. Guide can be from a University or Education Institute or from any other full time research institute.

## **PROCEDURE FOR RECOGNITION OF GUIDES**

The request for recognition of Guide shall come from the guide on prescribed Membership Form for Panel of Academicians accompanied with full resume and documents of research activities and publications. The Membership Form may be sent to University for approval. The recognition is valid till retirement. Retired professors may also apply for guide ship with a medical fitness certificate. In such cases, a co-guide will also be allocated to guide the student and who is preferably working in an Institute / organization.

## **NUMBER OF CANDIDATES**

The maximum number of candidates for Ph.D. under a single guide will be 12 at a time. Once a candidate has submitted the thesis or left the guide once for all, the guide can take an alternate student for that vacancy.

## **CHANGE OF GUIDE**

Change of guide shall not be permitted as a routine, unless

1. The existing guide gives a "No objection Certificate" to the student
2. The new guide gives the "Certificate of Willingness" to the student

The Doctoral Committee of a research scholar may recommend change of guide or appointment of a co-guide for valid reasons along with the above certificate and to pay the prescribed fees for the same.

## **INDEPENDENT MODE**

In the subjects of super specialization, where Guides are not available, the student can apply to the University for the Approval of the Independent mode. Approval of Independent mode solely depends on the justification, discretion and understanding of the Doctoral Committee.

## **DOCTORAL COMMITTEE**

The Academic Head of the Study Center / Independent Institute / Research Center will intimate to the Dean Center for Research, for each scholar the area of research, the name(s) of the



guide(s) and a panel of names, indicating the area of specialization of members for constitution of a Doctoral Committee, within 4 weeks of the date of joining of the research scholar.

The following is the composition of the Doctoral Committee:

**Chairman-** Academic Head of the Independent Institute / Research Center (Head or Nominee of Head) (If the Head happens to be the Guide of a scholar, the senior most Professor)

**Member** - Research Guide or Co-Guide nominated by Guide.

**Member** - A minimum of **one** subject expert nominated by the Country Representative from the suggested panel of three names by Academic Head of the Independent Institute / Research Center. In case any member is not willing to attend Doctoral Committee meeting, Country Representative will nominate another member on suggestion of Chairman, Doctoral Committee.

The Doctoral Committee will meet normally within a month of being constituted, where the research scholar will make a presentation. The Doctoral Committee will consider the proposed research topic on the basis of Preliminary Synopsis and approve the courses work in this meeting.

If Doctoral Committee suggests resubmission of the proposed research topic, after revision, the research scholar will be allowed to resubmit the proposed research topic within one month failing which the revised proposed research topic will not be accepted and his/her registration will be cancelled.

The Doctoral Committee may give credit to course work already undergone by research scholar in accredited institution; provided they are same or equivalent to those prescribed and the performance level of the scholar meet the minimum requirements.

## RESEARCH PROGRAM

The research program consists of 3 Semesters (Each 6 months)

**Part I: Course Work** - The candidates registering for Ph.D. with Master Degree qualification shall undergo the course work respectively comprising the following theory papers.

**Research Methodology** The candidates with Master of Philosophy or equivalent qualification are exempted from the course work for on the basis of recommendation of Doctoral Committee.

The candidates having Technical, Medical, Para Medical and Nursing qualifications are exempted from undergoing course work for on the basis of recommendation of Doctoral Committee. All registered candidates for Ph.D. shall take Examination at the end of in the first semester. The University shall test the student's attainment on the methods of research and test this/her ability to continue research. Every Ph.D. scholar shall perform satisfactorily in Examination. If the performance of are search scholar in the Examination in the first attempt is not satisfactory, he/she will be given one more opportunity to appear for the examination



within six months of the first attempt. There gestation of a research scholar who fails to complete successfully the Examination in both attempts, his/her registration will be cancelled.

**Part II: Research Work** - The minimum duration for research is 18 months from the session of registration. However this limit shall be extended by another 18 months for valid reasons with the recommendation by the Doctoral Committee and by paying the appropriate fees. Women candidate can avail 1 more year of extension for maternity reasons. If the student fails to submit the thesis for Ph.D. degree within the stipulated time period, the registration shall automatically stands cancelled.

## PROGRESS REPORT

(a) A registered research scholar shall submit a written report in the required format, at end of each semester the session, and every three months thereafter. The report should be routed through the guide to the Head of the Study Center / Independent Institute / Research Center for consideration by the Doctoral Committee.

(b) The progress made by a research scholar shall be reviewed by the Doctoral Committee once a year for the first 3 years and every six months thereafter.

(c) If Doctoral Committee satisfied from the quantum of effort put in by the scholar towards doctoral studies and research, then submits satisfaction report on prescribed format to Dean Center of Research through Country Representative every year.

(d) Continuance of registration will be based on the recommendation of the Doctoral Committee. Inadequacy of effort/progress can be a reason for cancellation of registration.

## REGISTRATION

The date of registration shall be the date of session. The student shall pay the prescribed semester fees to the Study Center / Independent Institute / Research Center Centre.

All research scholars whose registration is still in force, are required to enroll in person each year on the stipulated date till their submission of thesis after payment of the requisite fees

## WITHDRAWAL FROM THE PROGRAMME

A scholar may be permitted by the Dean Center for Research to withdraw from the program for a year or longer for reasons of ill health or other valid grounds duly recommended by the Doctoral Committee. Normally a scholar will be permitted to discontinue from the program only for a maximum continuous period of eighteen months.

## CANCELLATION OF REGISTRATION

If the academic performance of the scholar is not found satisfactory by the guide, action will be taken based on the report by the guide. If the scholar wants to revoke the cancellation with a support letter from the Doctoral Committee and revoke fees will be charged.

The registration of a research scholar who has not submitted his/her thesis before the end of the maximum permissible period will be cancelled.



If the scholar, wants to cancel his/ her registration a request has to be given in writing and endorsed by the Head of Study Center / Independent Institute / Research Center. The scholar shall pay the fees up to date and request for the cancellation.

## **CHANGE OF TITLE**

Change of title will be permitted within six months from the date of registration and before the Examination, whichever is earlier. Change of title will be permitted only once. The prescribed fees have to be remitted along with the written request and new title approval from Doctoral Committee. Topic/Title and Guide shall not be changed at the same time.

## **SYNOPSIS**

(a) On satisfactory completion of the prescribed courses, the comprehensive examination and the research work, the scholar shall submit the requisite copies of the synopsis of his/her research work in the required format to the Academic Head of the Independent Institute / Research Center for consideration of the Doctoral Committee. Prior to submission of the synopsis, the scholar is required to publish at-least 2 research articles either single or as a team in a state, national or international journals. He should have participated in international, national or state level conferences.

(b) The research scholar shall present the synopsis before the Doctoral Committee. The Doctoral Committee will, if it approves the work reported in the synopsis, permit the research scholar to submit the thesis and recommend a panel of at least six examiners from outside the Independent Institute / Research Center.

## **SUBMISSION OF THESIS**

The research scholar shall, within one month of acceptance of the Synopsis, submit his/her thesis in 5 bound volumes& 2 soft copy (MS WORD format only) duly signed by research scholar and his guide, along with the certificate that the researcher's work is original and completed under his supervision.

The Doctoral Committee may grant additional time of one month on a request from the scholar for valid reasons. The researcher has to declare that the work done is his original and not plagiarism. Regulations clearly lay that even after the award of Ph.D., if it is found that a student, has plagiarized his/her degree shall be withdrawn and the student shall be permanently debarred from further registration. If the Guide also had helped in such plagiarism he/she will be disqualified to guide students permanently.

## **PANEL OF EXAMINERS**

The Thesis shall be referred to two examiners chosen by the Dean NUCED Center for Research or his nominee from among the panel of examiners recommended by the Doctoral Committee at its synopsis meeting.

## **THESIS REPORT**

The copy of the Ph.D. thesis submitted by the student shall be dispatched by Registered Parcel or Courier Service to the examiner. If the examiner prefers to evaluate in electronic format, CD shall be sent to the examiner.





The examiner shall send their reports in the prescribed form sent along with the thesis with separate detailed report on the merits and demerits of the thesis. They should mention in the report.

- ☐ Recommended for award
- ☐ Recommended for award subject to the condition that the student furnishes satisfactory clarification to the queries during the viva-voce examination.
- ☐ Recommended for award subject to the condition that the correction/modification suggested by the examiner is carried out by the student.
- ☐ Recommended for revision and resubmission, willingness to reevaluate the revised thesis
- ☐ Rejected.

(a) The examiner is expected to send the report on the thesis within 45 days from the date of receipt of the thesis.

(b) In case of undue delay in receiving the thesis report, the Dean Center for Research or his/her nominee shall appoint another examiner in his/her place for evaluating the thesis.

(c) If one of the two thesis examiners declares the thesis as not commended, the thesis shall be referred to a third examiner from the panel for his/her evaluation.

(d) If an examiner suggests resubmission of the thesis, after revision, the research scholar will be allowed to resubmit the thesis within the time stipulated by the University failing which the revised thesis will not be accepted and his/her registration will be cancelled.

(e) If two examiners, after referral to a third examiner, if necessary, report the thesis as not commended there gestation of the scholar shall stand cancelled.

(f) If reports of two examiners after referral to a third examiner, if necessary, declare the thesis as '**commended**' the Doctoral Committee will consider the reports and recommend for conduct of viva voce. The Doctoral Committee on communication from the Dean Center for Research shall fix the date for viva-voce. Public notice is posted on the board and along with one of the examiners shall conduct the viva-voce. The Doctoral Committee will suggest a panel of at least three expert members out of which one member will be nominated for the viva voce.

(g) If an examiner is not willing to evaluate the revised thesis, the thesis will be referred to the 3rd examiner.

(h) In all other cases, not covered by the above Regulations the matter will be referred to the Dean Center for Research through Doctoral Committee for consideration. A candidate shall be permitted to submit the revised thesis not more than 2 times. The maximum period allowed is 6 months for each resubmission. After the evaluation of the thesis, two hard copy and two CD shall be sent to the University library.



## VIVA VOCE EXAMINATION

The Country Representative with approval of Dean Center for Research constitutes a committee for the public Viva-Voce with the student's guide as convener and one member from the Panel of Examiner suggested by Doctoral Committee. The Viva-Voce examination date shall be widely published and conducted on a working day in the Study Center / Independent Institute / Research Center. A list of names of the participants with their signatures be obtained and sent to the Dean Center for Research through Country Representative.

A student, who submits a satisfactory thesis but fails to satisfy Viva-Voce board, may on the recommendation of the board be permitted to submit him or herself of a viva-voce examination for the second time within the period of 3 months. If the report of the viva voce board declares the performance of the research scholar not satisfactory, he/she may be asked to reappear for viva voce at a later date (not earlier than a month and not later than six months from the date of the first viva voce).

If the viva voce board on the second occasion also evaluates the performance of the research scholar not satisfactory, the matter will be referred to Dean Center for Research for a decision.

The recommendations of the viva-voce board for the award of Ph.D. degree along with all consolidated valuation reports shall be placed before the NUCED Research Committee and the results will be declared. In the case of interdisciplinary research, the Ph.D. degree will be awarded in the faculty and subject to which the student's Master degree belongs.

All the research scholars shall submit one copy of the final form of thesis in A5 size and an electronic version in PDF format after the viva voce board recommends the award of the Ph.D. degree.

## Certificate of Willingness

**Name of Candidate :**

**Address of Candidate :**

**Phone No. :**

**Research Topic :**

**Name of Partner Institute :**

**Address of Partner Institute :**

**Email ID of Candidate :**

This is to state that in the event of above Candidate of this organization being selected for Ph.D. program in the Newport University CED, I agree to be his/her guide and shall extend all possible facilities to enable him to carry out his/ her research program towards the submission of thesis. The rules and regulations of the University, concerning to the courses and relevant matters are fully acceptable to me and will be abided.

**Place : Signature & Seal of the Research Guide**

**Date : Membership No. of NUCED:**





## Newport University CED

### **GUIDELINES FOR PREPARING PRELIMINARY SYNOPSIS**

A preliminary synopsis for Ph.D. registration, whether the area of study belongs to Engineering, Science, Management or Social Science should include certain basic components, in which a number of questions need to be addressed. Why research on the proposed topic should be undertaken and what gains are likely to be achieved? What has been done previously in this or related area? What are the objectives of this study and how these will be achieved? Are the facilities required for doing the proposed research available? An extensive initial exercise should help in designing sound research project, which likely to make a significant contribution in successful completion of Ph.D. degree. The following is intended to help you in preparing the preliminary synopsis.

#### **1. TITLE OF THE TOPIC:**

**The title should be brief as possible but should carry as much information as required.**

#### **2. BRIEF RESUME OF THE WORK:**

a) Give brief introduction to the work you intend doing by focusing OR present literature on the subject, gaps in the knowledge, if any, aid the reasons for undertaking the study. You may have to quote a few references or other studies (About 100-500 words of introduction).

b) State the research question.

c) Give the objectives of the study. The objectives usually should not be more than 2 to 4 and should relate to the points or key questions raised in introduction (about 50-300 words for objectives).

d) Review of the literature and give 10-15 references pertaining to the subject and work already published. It should be related to the objectives of the study.

#### **3. MATERIAL AND METHODS: (About 500 words)**

Briefly explain the source from which you would collect data for the study. For example, in clinical settings, it may be patients in hospitals, or in community settings, or it may be households or it may be a laboratory based study.

Described the method of collection of data. For instance, it may be interview or study of records or by animal experiments or by performing tests or laboratory Investigations or even through some intervention. In case of human or animal study, mention the inclusion and exclusion criteria. If there are any ethical issues involved mention them and state how you intend to overcome.

If you are taking a sample, mention the sampling procedure and sample size.

Thus it is important to mention the subjects of your study, parameters and the procedures. Give the operational definitions.

#### **4. RESULTS (In case if some preliminary studies have already been conducted)**



**5. SUMMARY & CONCLUSION** (In case if some preliminary studies have already been conducted)

**6. REFERENCES:**

Give about 4-6 references or articles quoted in your introduction or those related to your study. Follow the guidelines for writing references as under

Name order Last name first (of first author when more than one author)

Placement End of body of report listed alphabetically by last name of first author or follow

Vancouver style (N Eng J Med 1991, 324:424-89)

## **GUIDELINES FOR PREPARING THESIS**

### **(Prescribed Format and Specification)**

#### **1. GENERAL:**

The manual is intended to provide broad guidelines to the Ph.D. Scholars in the preparation of the thesis. In general, the thesis shall report, in an organized and scholarly fashion, an account of original research work of the research scholar leading to the discovery of new facts or techniques or correlation of facts already known (analytical, experimental, hardware oriented etc) and demonstrating a quality as to make a definite contribution to the advancement of knowledge and the research and present the finding in an appropriate manner with actual accomplishments of the work plainly stated and honestly appraised.

#### **2. NUMBER OF COPIES TO BE SUBMITTED FOR EVALUATION:**

Ph.D. Thesis : Five hard copies & two soft Copies are to be submitted.

#### **3. SIZE OF THESIS:**

The size of thesis should not exceed 300 pages of typed matter reckoned from the first page of Chapter 1 to the last page of Appendix.

#### **4. ARRANGEMENT OF CONSENTS OF THESIS:**

The sequence in which the thesis material should be arranged and bound should be as follows:

- 1) Cover Page & Title Page
- 2) Bonafide Certificate
- 3) Abstract
- 4) Acknowledgment
- 5) Tables of Contents
- 6) List of Tables
- 7) List of Figures
- 8) List of Symbols, Abbreviations and Nomenclature
- 9) Chapters
- 10) Appendices



11) Reference

12) List of Publications

13) Curriculum Vitae

The Tables and Figures shall be introduced in the appropriate place.

## 5. PAGE DIMENSIONS AND MARGIN:

The dimensions of the final bound 3 copies of the thesis report should be 290mm X 205mm.

Standard A4

size (297mm X 210mm) paper may be used for preparing the copies.

The Thesis (at the time of submission) should have the following pagemargins:

Top edge : 30 to 35 mm

Bottom edge : 25 to 30 mm

Left side : 35 to 40 mm

Right side : 20 to 25 mm

The Thesis should be prepared on good quality white paper preferably not lower than 80 gsm.

Tables and figures should conform to the margin specifications. Large size figure should be photographically or otherwise reduced to the appropriate size before insertion.

## 6. MANUSCRIPT PREPARATION:

The Scholar shall supply a typed copy of the manuscript to the guide for the purpose of approval. In the preparation of the manuscript, care should be taken to ensure that all textual matter is typewritten to the extent possible in the same format as may be required for the final thesis.

Hence some of the information required for the final typing of the thesis is included also in this section. The headings of all items 2 to 12 listed in section 4 should be typed in capital letters without punctuation and centered 50mm below the top of the page. The text should commence 4spaces below this heading. The page numbering for all items 1 to 8 should be done using lower case Roman numerals and the pages thereafter should be numbered using Arabic numerals.

**6.1 Cover Page & Title Page** - A specimen copy of the Cover page & Title page for thesis are given in Annexure I.

**6.2 Bonafide Certificate** - The Bonafide Certificate shall be in double line spacing using Font Style Times New Roman Font size 14, as per the format shown in Annexure II. The Certificate shall carry the supervisor's name, academic designation (not any other responsibilities of administrative nature), department and full address of the institution where the supervisor has guided the research scholar. The term '**SUPERVISOR**' must be typed in capital letters between the supervisor's name and academic designation.

**6.3 Abstract** - Abstract should be an essay type of narration not exceeding four pages outlining the research problem, the methodology used for tackling it and a summary of the findings, when typed double line spacing, Font Style Times New Roman and Font Size 14.



**6.4 Acknowledgment** - The acknowledgment shall be brief and should not exceed one page when typed in double spacing. The scholar's signature shall be made at the bottom end above his / her name typed in capitals.

**6.5 Table of Contents** - The table of contents should list all material following it as well as any material which precedes it. The title page, Bonafide Certificate and Acknowledgment will not find a place among the items listed in the Table of Contents but the page numbers in lower case Roman letters are to be accounted for them. One and a half spacing should be adopted for typing the matter under this head. A specimen copy of the Table Contents for thesis is given in Annexure III.

**6.6 List of Table** - The list should use exactly the same captions as they appear above the tables in the text. One and a half spacing should be adopted for typing the matter under this head.

**6.7 List of Figures** - The list should use exactly the same captions as they appear below the figures in the text. One and a half spacing should be adopted for typing the matter under this head.

**6.8 List of Symbols, Abbreviations and Nomenclature** - One and a half spacing should be adopted for typing the matter under this head. Standard Symbols, abbreviations etc. should be used.

**6.9 Chapters** - The chapters may be broadly divided into 3 parts (i) Introductory chapter, (ii) Chapters developing the main theme of the thesis, (iii) Results, Discussion and Conclusion. The main text will be divided into several chapters and each chapter may be further divided into several divisions and sub-divisions.

- ☐ Each chapter should be given an appropriate title.
- ☐ Tables and figures in a chapter should be placed in the immediate vicinity of the reference where they are cited.
- ☐ Footnotes should be used sparingly. They should be typed single space and placed directly underneath in the very same page, which refers to the material they annotate.

**6.10 Appendices** - Appendices are provided to give supplementary information, which If included in the main text may serve as a distraction and cloud the central theme under discussion.

- ☐ Appendices should be numbered using Arabic numerals, e.g. Appendix 1, Appendix 2, etc.
- ☐ Appendices, Tables and references appearing in appendices should be numbered and referred to at appropriate places just as in the case of chapters.
- ☐ Appendices shall carry the title of the work reported and the same title shall be made in the contents page also.
- ☐ The list publications made by research scholar during the period of research, shall be brought in the Appendix titled, as list of publications and the same shall be reported in the contents. The author can refer the publications mentioned in the Appendix, in the text of the Thesis, by mentioning his/her name followed by Appendix number and the year of publications, in brackets.



**6.11 List of References** - Any works of other researchers, if used either directly or Indirectly, the indirectly, the origin of the material thus referred to at appropriate places in the thesis should be indicated, A paper, a monograph or a book may be designated by the name of the first author followed by the year of publication, placed inside brackets at the appropriate places in the thesis should be indicated. A paper, a monograph or a book may be designated by the name of the first author followed by the year of publication, placed inside brackets at the appropriate place of reference. The citation may assume any one of the following forms. The author publication during the period of research should not be included in the references and can be separately mentioned as in 6.10.

### Examples of citation

(i) An improved algorithm has been adopted in literature ( Tsychiya 1980)

(ii) Jankins and Walts (1968) have dealt at length this principle.

(iii) The problem of mechanical manipulators has been studied by Shin et al (1984) and certain limitations of the method used, has been pointed out by Shin et al (1984 a).

The listing should be typed 4 spaces below the heading “REFERENCES” in alphabetical order in single spacing left-justified. The reference material should be listed in the alphabetical order of the first author. The name of the author/authors should be immediately followed by the year and other details. A typical illustrative list given below relates to the citation example quoted above.

### REFERENCES

1. Aripnammal S. and Natrajan S. (1994) 'Transport Phenomena of Sm Se1-x Asx' Pramana Journal of Physics Vol. 42 No.5 pp. 421-425.
2. Barnard R.W. and Kellogg C. (1980) 'Application of Convolution operators to Problem in univalent function theory. Michigan Mach. J., Vol 27, pp 81-94.
3. Jankins G.M. and Walts D.G. (1968), Spectral Analysis and its Applications' Holder Day, Sanfrancisco.
4. Shin K.G. and Mckay N.D. (1984) 'Open loop minimum time control of mechanical manipulations and its applications', Proc. Amer. Contr. Conf., San Diego, CA, pp. 1231-1236.

**6.12 Curriculum Vitae** A Vitae mentioning the salient potentialities of the author shall be made at the end of the Thesis and shall be made in **three** paragraphs. The Vitae shall be prepared in double spacing and shall be restricted to a single page.

**6.13 Tables and Figures** By the word Table, is meant tabulated numerical data in the body of the thesis as well as in the appendices. All other non-verbal material used in the body of the thesis and appendices such as charts, graphs, maps, photographs and diagrams may be designated as figures.

- A table or figure including caption should be accommodated within the prescribed margins limits and appear on the page following ht page where their first reference is made.
- Tables and figures on half page or les in length may appear on the same page along with the text. However, they should be separated from the text both above and below by triple spacing.



- ☐ All tables and figures should be prepared on the same paper or material used for the preparation of the rest of the thesis.
- ☐ For preparing captions, numerals, symbols of characters in the case of tables of figures, the Computer should be enclosed.
- ☐ Two or more small tables of figure may be groped if necessary in a single page.
- ☐ Wherever possible, the entire photograph(s) may be reproduced on a full sheet of photographic paper.
- ☐ Photographs if any should be included in the colour Xerox form only. More than one photograph can be included in a page.
- ☐ Samples of Fabrics, Leather, etc., if absolutely necessary may be attached evenly in page and fixed/pasted suitably and should be treated as figures.

## 7. TYPING INSTRUCTIONS

### 7.1 General

This section includes additional information for final typing of the thesis. Some information given earlier under 'Manuscript preparation' shall also be referred.

The impressions on the typed/duplicated/printed copies should be black in colour.

If Computer printers are used uniformity of the font in the same thesis shall be observed.

Certain symbols, characters or markings not found on a standard typewriter may be hand written using Indian ink or a Stylus pen (in case stencil sheet are used). Corrections, interlineations and crossing out of letters or words will not be permitted in any of the copies of the thesis intended for submission. Erasures, if made, should be neatly carried out in all copies.

A sub-heading at the bottom of a page must have at least two full lines below it or else it should be carried over to the next page.

The last word of any page should not be split using a hyphen.

One and a half spacing should be used for typing the general text. The general text shall be typed in Font Style Times New Roman and Font Size 14.

Single spacing should be used for typing:

- I. Long Tables
- II. Long quotations
- III. Foot notes
- IV. Multilane captions
- V. References

All quotations exceeding one line should be typed in an indented space the indentation being 15mm from either margin.

### 7.2 Chapters

The format for typing Chapter heading, Divisions headings and Sub-divisions headings are explained through the following illustrative examples.





Chapter heading : CHAPTER 1

## INTRODUCTION

Division heading : 1.1 OUTLINE OF THESIS

Sub-division heading : 1.1.2 Literature review.

The word CHAPTER without punctuation should be centred 50mm down from the top of the page. Two spaces below, the title of the chapter should be typed centrally in capital letters. The text should commence 4 spaces below this title, the first letter of the text starting 20mm, inside from the left hand margin.

The division and sub-division captions along with their numberings should be left-justified. The typed material directly below division or sub-division heading should commence 2 spaces below it and should be offset 20mm from the left hand margin. Within a division of sub-division paragraphs are permitted. Even paragraph should commence 3 spaces below the last line of the preceding paragraph, the first letter in the paragraph being offset from the left hand margin by 20mm.

## 8. NUMBERING INSTRUCTIONS

### 8.1 Page Numbering

All pages numbers (whether it be in Roman or Arabic numbers) should be typed without punctuation on the upper right hand corner 20mm from top with the last digit in line with the right hand margin. The preliminary pages of the thesis (such as Title page, Acknowledgment, Tables of Contents etc.) should be numbered in lower case Roman numerals. The title page will be numbered as (i) but this should not be typed. The page immediately following the title page shall be numbered (ii) and it should appear at the top right hand corner as already specified. Pages of main text, starting with Chapter 1 should be consecutively numbered using Arabic numerals.

### 8.2 Numbering of Chapters, Division and Sub-Divisions

The numbering of chapters, division and sub-divisions should be done using Arabic numerals only and further decimal notation should be used for numbering the divisions and sub-divisions within a chapter. For example sub-division 4 under division 3 belonging to chapter 2 should be numbered as 2.3.4. The caption for the sub-division should immediately follow the number assigned to it. Every chapter beginning with the first chapter should be serially numbered using Arabic numerals. Appendices included should also be numbered in an identical manner starting with Appendix 1.

### 8.3 Numbering of Tables and Figures

Tables and Figures appearing anywhere in the thesis should bear appropriate numbers. The rule for assigning such numbers is illustrated through an example. Thus, if a figure in Chapter 3, happens to be the fourth then assign 3.4 to that figure. Identical rules apply for tables except that the word Figure is replaced by the word Table. If figures (or tables) appear in appendices



then figure 3 in Appendix 2 will be designated as Figure A 2.3. If a table to be continued into the next page this may be done, but no line should be drawn underneath an unfinished table. The top line of the table continued into the next page should, for example read Table 2.1 (continued) placed centrally and underlined.