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**ACADEMY OF MARITIME EDUCATIO AND TRAINING**

**DEEDMED TO BE UNIVERSITY**

**GUIDELINES FOR PREPARATION PHD THESIS MANUSCRIPT-2016**

**Preamble**

PhD thesis is a scholarly manuscript of documented information pertaining to the individual research scholar’s PhD research in standard format. The thesis, irrespective of the discipline and nature of research problem engaged, shall have common format for a University. Thesis is a manuscript prepared with the effect of original research work of the research scholar leading to the advancement of knowledge in the chosen field. It is also a body of information which is used to evaluate the originality, creativity and ability of the scholar to approach a research problem and offer a convincing solution with the support of experiments, survey, analysis, simulations etc.

These guidelines for preparation PhD thesis manuscript is based on the Procedural Guidelines for PhD programme 2016 at AMET deemed to be University in compliance with University Grants Commission (Minimum Standards and Procedure for Award of M.PHIL./PH.D.Degrees) Regulations, 2016. These guidelines shall provide general and specific requirements for the thesis preparation including guidelines for structuring the contents.

**Scope**

These guidelines are applicable to all the PhD candidates registered at AMET University irrespective of the date and mode of registration. It is intended to provide guidelines for the Research Supervisors, Doctoral Committee Members, PhD scholars and PhD thesis examiners of AMET deemed to be University.

**Eligibility for thesis submission**

Within six months of synopsis submission, provided minimum duration of the research period is completed a candidate may submit Six copies of Ph. D. Thesis through Guide, HOD to the Controller of Examinations. The Submission of PhD thesis shall be accepted only after both the examiners approve the synopsis and the DC has recommended the draft thesis after having conducted the Pre-PhD presentation. Copies of thesis are to be submitted along with prescribed application and necessary fee (Rs 15000 as DD in favor of Academy of Maritime Education and Training.

**Number of Copies**

A PhD scholar shall submit six copies of PhD thesis. PhD thesis will be evaluated by the two external examiners, one internal examiner (Supervisor/Guide) and a viva voce examiner. After successful defense of PhD thesis in public viva voce examination, one copy of the PhD thesis will be made available in the Department concerned and one in the Prof VBS Rajan Library of the University. Office of COE shall also maintain one copy of thesis.

Technical specifications for the Thesis

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| **Criterion** | **Specification** |
| Logo | The University name and logo shall be used only as authorized  Logo  C:\Users\ITSUPPORT\Downloads\logo new.jpg  Name of the University  Academy of Maritime Education and Training (deemed to be University) |
| Size | A4 size in printed format |
| Font style and size | Times New Roman; Size normally 13 otherwise specified |
| Page limit | Not exceeding 300 pages of typed material excluding annexure (Introduction to References) |
| Contents | 1. Cover Page & Title page 2. Certificate from the Supervisor 3. Declaration 4. Acknowledgement 5. Table of Contents 6. List of Tables 7. List of Figures 8. List of Symbols, notations, Abbreviations and Nomenclature 9. Abstract 10. Chapters (Candidates may present thesis in separate chapters or as a single chapter based on the nature of research work)   Each chapter may contain   1. Introduction 2. Materials and Methods 3. Results 4. Discussion 5. Summary and conclusion 6. References 7. Appendices 8. List of Publications-Copies of front pages/Conference certificates |
| Tables and Figures | Tables and figures must be numbered sequentially  Each table and figure shall be included in the appropriate places either as a separate sheet or within the running text |
| Page margins | Final submission shall have the following margins  Top edge : 1 inch  Bottom edge : 1 inch  Left side : 1.25 inch  Right side : 1.25 inch |
| Line spaces | Excepting for title and certificate pages, others shall have a line space of 1.75 points |
| Spacing between paragraphs | Excepting for title and certificate pages, others shall have  Before 6 points  After 6 points |
| Cover page | Please follow as given in template as Annexure 1  Title shall be of single line spaced typed in Times New Roman font of size 16 in BLACK bold letters |
| Title page | Please follow as given in template as Annexure 2  Title shall be of single line spaced typed in Times New Roman font of size 16 in BLACK bold letters |
| Declaration by the candidate | The Declaration by the candidate shall be in double line spacing using Font Style Times New Roman Font Size 14, as per the format shown in Annexure 3 |
| Certificate from the Supervisor | The Certificate from the Supervisor shall be in double line spacing using Font Style Times New Roman Font Size 14, as per the format shown in Annexure IV |
| Abstract | Abstract is the concise summary of the entire research work not exceeding two pages outlining the research problem, the methodology used, results obtained and a summary of the findings.  This shall be typed 1.75 line spacing, Font Style Times New Roman and Font Size 13. |
| Acknowledgement | This section shall be brief and should not exceed two pages and shall bear the signature of the PhD scholar at the right end of the last page of acknowledgement.  This shall be typed 1.75 line spacing, Font Style Times New Roman and Font Size 13. |
| Table of contents | This shall enlist all the sections and subsections and their respective titles. Avoid listing cover page, title page and certificates in the table of contents.  This shall be typed 1.75 line spacing, Font Style Times New Roman and Font Size 13.  Roman letters shall be followed for numbering major sections while Arabic numerals for the subsections and further divisions accordingly.  A model table of contents is given as Annexure 4 |
| List of Tables | It is a complete list of tables used in the entire manuscript in appropriate order. The titles of tables given in this list and in the manuscript must be similar.  This shall be typed 1.75 line spacing, Font Style Times New Roman and Font Size 13. |
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| Chapters | If multiple chapters are used, a common introduction for all the pages is necessary not exceeding 10 pages |
| Introduction | In case the thesis is divided in to more than one chapters, each chapter may contain separate Introduction, Materials and Methods, Results, Discussion, Summary and References.  This shall be typed 1.75 line spacing, Font Style Times New Roman and Font Size 13.  Sub headings shall be sequentially numbered in Arabic numerical. All subheadings shall be in bold capital letters. |
| Review of literature |
| Materials and Methods |
| Results |
| Discussions |
| Summary |
| References |
| Citation of References | Where ever the other researchers works or information from other sources in any form used, either directly or indirectly, it shall be appropriately cited both at the using location within the text and also the details in the reference section.  **Citing of references**  While citing the references within the texts, the author or source name shall be given within paranthesis followed by the year of publication.  A single author shall be cited with the first name followed by year. When an article with two authors is cited, both the first names of the authors shall be used followed by the year. When an article with more than two authors is cited it shall provide the first name of the first author with a suffix *et al.,* and followed by the year of publication.  Example.  Several attempts were made in India and other countries to control sheath blight of rice using biocontrol agents (Jayaprakashvel, 2008; Mew and Rosales, 1986; Mathivanan et al., 2005).  **Listing of References**  The listing of references shall be typed 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.  **Format for citing references**  **Books**  Baporikar, N. 2010. Doctorate Education: A Practical Guide. Viva Books, New Delhi. pp 1-392  **Chapters in Books**  Baker, R. 1991. Induction of rhizosphere competence in the biocontrol fungus *Trichoderma.* in D.L. Keister and P.B. Cregan (eds.), Rhizosphere and plant growth. Kluwer Acadamic Publishers,Dordrecht pp- 221-228.  **Single author journal article**  Balagurunathan, R. 2010. L-glutaminase Producing Actinomycetes from Marine Sediments - Selective Isolation, Semi Quantitative Assay and Characterization of Potential Strain. *Australian Journal of Basic and Applied Sciences*. **4**(5): 698-705.  **Two authors journal article**  Jayasinghe, D. and Parkinson, D. 2008. Actinomycetes as antagonists of litter decomposer fungi. *Applied Soil Ecology* **38:** 109-118.  **Multiple authors journal article**  Jayaprakashvel, M., Muthezhilan, R., Srinivasan, R., Hussain, J.A., Gobalakrishnan, S., Bhagat, J., Kaarthikeyan, C. and Muthulakshmi, R. 2010, Hydrogen Cyanide Mediated Biocontrol Potential of *Pseudomonas* sp. AMET1055 Isolated from The Rhizosphere of Coastal Sand Dune Vegetation *Advanced Biotech* **9**: 39-42.  **Web contents**  ACCS. 2016. Investigating mechanisms of evolutionary change: genes to communities. Weblink: https://acce.shef.ac.uk/research-foci/investigating-mechanisms-of-evolutionary-change-genes-to-communities/; Accessed on 17-10-2016. |
| Appendices | If needed additional details be given as appendix at the end of thesis to provide more value to the data presented therein. They shall be numbered in Arabic numerical.  A compulsory appendix i.e., the list of publications made by research scholar during the research period shall be given along with the copies of publications.  This shall be typed 1.75 line spacing, Font Style Times New Roman and Font Size 13. |
| Tables and figures | All tables and figures shall be numbered in Arabic numerical  Tables and figures are to be inserted within the main text. No table/figure describing the thesis contents shall be given as annexure.  Tables and figures obtained from other sources are to be properly cited and appropriate permissions are to be obtained in writing. |
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| Others | The Authorities/Committees of the University are empowered to modify these guidelines; Specific guidelines if any provided to unique theses or special cases are also to be adhered strictly. |

**DIVERSITY OF MARINE ACTINOMYECTES IN THE**

**RHIZOSPHERE OF COASTAL SAND DUNES AND**

**THEIR BIOTECHNOLOGICAL APPLICATIONS**

**A THESIS**

**Submitted to the**

**ACADEMY OF MARITIME EDUCATION AND TRAINING**

**(Declared as Deemed to be University u/s 3 of UGC Act 1956)**

*in partial fulfillment for the award of the degree of*

**DOCTOR OF PHILOSOPHY**

**IN**

**MARINE BIOTECHNOLOGY**

***by***

**Ms. S. Sangeetha, M.Sc.,**

**[ Reg. No. \_\_\_\_\_\_\_\_\_\_\_ ]**

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**Month & Year**

**CERTIFICATE FROM THE SUPERVISOR**

I certify that the Ph.D., thesis entitled “**DIVERSITY OF MARINE ACTINOMYECTES IN THE RHIZOSPHERE OF COASTAL SAND DUNES AND THEIR BIOTECHNOLOGICAL APPLICATIONS**”submitted by **Ms. S. Sangeetha** to AMET deemed to be Universityfor the degree of **Doctor of Philosophy in Marine Biotechnology** is the record of original research work done by her under the guidance and supervision of me at the Department of Marine Biotechnology, AMET deemed to be University, Chennai and has not formed the basis for the award of any degree, diploma, associateship, fellowship or titles in this University or any other University or Institution of higher learning.

**(M. Jayaprakashvel)**

Date :

Place : Kanathur, Chennai

**DECLARATION**

I hereby declare that this Ph.D., thesis entitled “**DIVERSITY OF MARINE ACTINOMYECTES IN THE RHIZOSPHERE OF COASTAL SAND DUNES AND THEIR BIOTECHNOLOGICAL APPLICATIONS**”submitted by me for the degree of **Doctor of Philosophy in Marine Biotechnology** to AMET deemed to be University is the record of original research work done by me under the guidance and supervision of **Dr. M. Jayaprakashvel**, Assistant Professor at the Department of Marine Biotechnology AMET deemed to be University, Chennai and has not formed the basis for the award of any degree, diploma, associateship, fellowship or titles in this University or any other University or Institution of higher learning.

**(S. Sangeetha)**

Date :

Place : Kanathur, Chennai

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**LIST OF SYMBOLS AND NOTATIONS**

NH3 Ammonia

NH4(2)SO4 Ammonium Sulphate