

UDK 378.2 (075.8)
BBK Ч481.268я73
П-58

Editorial board:

Prof. Gustavo Capannelli
Genoa University, Italy
Prof. Gennady Pavlikhin
Bauman Moscow State Technical University, RF
Prof. Nikolay Popov
Tambov State Technical University, RF
Prof. Hemda Garelick
Middlesex University, UK

Authors:

G. Abeysinghe, H. Garelick, E. Georgiadou, H. Jones, N. Popov, Ch. Sadler, A. White

Textbook editors:

E. Georgiadou, Ch. Sadler

П-58 Research methods and project management: textbook/ ed. by N.S.Popov.- Tambov: publishing house A.V. Chesnokov, 2011.-72 p.

ISBN 978-5-903435-92-0

The present textbook written by the teachers of Middlesex University of London, UK (G. Abeysinghe, section 3; H. Garelick, section 2; E. Georgiadou, section 2,4,7; H. Jones, section 5; Ch. Sadler, section 1,8; A. White, section 5) in cooperation with the Professor of Tambov State Technical University (N. Popov, section 6) is a part of book series for courses of the project "Network for Master Training in Technologies of Water Resources Management" (NETWATER).

The textbook is a collection of essays in master project (thesis) development and reflects more or less all stages of this process. It is written in compliance with European experience of teaching practice in master programs. The textbook gives some recommendations for students' independent research. It states the basic thesis stages and offers possible decision algorithms of research problems arising in the process of thesis development.

The textbook is developed for bachelor and master students of the programmes: 280700 "Technosphere Safety", 022000 "Ecology and Nature Management", 241000 "Power- and Resource-Saving Processes in Applied Chemistry, Petrochemistry and Bioengineering" as well as for teachers and methodologists who are interested in new pedagogic technologies development and practice of English language.

UDK 378.2 (075.8)
BBK Ч481.268я73

ISBN 978-5-903435-92-0

TABLE OF CONTENTS

Foreword	5
Вступительное Слово	6
Editors' Foreword	8
1. Introduction	9
1.1. Project Objectives	9
1.2. Roles and Responsibilities	9
1.3. The Project Life-Cycle	9
1.3.1. Beginning Phase	10
1.3.2. Middle Phase	10
1.3.3. End Phase	11
2. Research Methods, Research Design and Project Management.....	12
2.1. Background	12
2.2. Approaches to Research.....	12
2.2.1. Positivism versus Interpretivism	13
2.2.2. Constructivism	13
2.2.3. Nomothetic Research	13
2.2.4. Hypothetico-Deductive Methodology.....	16
2.2.5. Quantitative and Qualitative Research.....	16
2.3. The Basis of Good Research	17
2.3.1. Defining the Aims of the Investigation	18
2.3.2. Designing the Study	18
2.4. Planning the Research.....	19
2.4.1. The Research Proposal.....	19
2.4.2. Project Management	21
Example 2.1. Investigation of the Interactions between Pollutants and a Hydrocarbon-Degrading Microbial Consortium.....	22
Example 2.2. Health and Nuisance Effects of Air Pollution from Road Traffic.....	24
2.4.3. Planning Fieldwork	25
References	25
3. Literature Search.....	26
3.1. Why do we search for literature?	26
3.2. How do we search for literature?	27
3.2.1. How to do an online literature search?.....	27
3.3. Evaluating your Search Results	28
3.4. Referencing your Work.....	28
3.4.1. Referencing Styles	29
3.5. Paraphrasing	30
References	30
4. Critical Literature Review	31
4.1. Discursive Discussion, the Meaning and Strength of Words	31
References	33
5. Data Collection, Credibility, Presentation, Analysis, Interpretation.....	34
5.1. Introduction.....	34
5.1.1. Planning and Purpose of Experiments	34

5.1.2. Data Acquisition.....	35
5.1.3. Data Analysis.....	36
5.1.4. Statistical Analysis.....	36
5.2. Presentation of Data.....	36
5.2.1. Tables.....	37
5.2.2. Graphs.....	37
5.2.3. In Conclusion.....	41
References	41
6. Creative Thesis Writing	42
References	45
7. Risk and Risk Management	46
7.1. What is risk?.....	46
7.1.1. What might constitute a risk?	46
7.2. Risk Management	47
References	48
8. Preparing Your Dissertation	49
8.1. Introduction.....	49
8.2. Style.....	49
8.3. Layout.....	50
8.4. Structure.....	51
8.5. Summaries, Abstracts and Conclusions	53
8.5.1. Summarising.....	53
8.5.2. The Abstract	55
8.5.3. The Conclusion.....	56
8.6. Figures and Tables.....	56
8.7. Citation and Referencing.....	57
8.8. Summary	59
References	59
Appendix A: An Extract from Trevett et al (2005)	60
Abstract	60
Introduction.....	60
Two Opposing Viewpoints.....	61
Towards a Conceptual Framework	62
Appendix B: Suggested Templates for Monitoring and Evaluating Projects	64
First Cut Proposal.....	64
Formal Proposal	66
Milestone Assessment	68
Report Grading.....	69
Contention Resolution Form.....	71