

Template No. (12)

Hydrogeology Ph.D. Thesis Specification

University/Academy: Suez Canal University

Faculty/Institute: Science

Department: Geology

1-Course data			
Code: -----	Title: Ph.D. Thesis in Hydrogeology		Academic year/ Level: Post graduate -----
Credit/ Taught Hours:	Theoretical:	Practical:	Department/program: Geology

2- Course aim	<p>Thesis is the core component of the Ph.D. degree of hydrogeology programme. The aim of the thesis is:</p> <ul style="list-style-type: none"> - to provide a comprehensive experience in academic and applied water sciences to acquire the students with the essential concepts and applied field and laboratory methods in hydrogeologic research which deals with groundwater dynamics, exploration, drilling, aquifer tests, sustainable allocation of groundwater, contamination, and computer modeling. - To develop also adequate skills through actual analyses, practical and experiments to let the students able to solve water problems, self-manage and easily collaborate with others in teamwork - To bridge the gap between academic knowledge and understanding of taught courses and practical problem solving. - To provide student with certain degree of self-direction, self-reliance and self-management through the research work.
3- Intended Learning Outcomes (ILOs):	
3.A- Knowledge and understandings:	<p>3.a-1 Acquiring, understanding, organizing and presenting knowledge, relating to hydrogeology.</p> <p>3.a-2 Understand how research might inform design and how the process of designing might be understood as part of a research process,</p> <p>3.a-3 Organize the ideas, implementing the research plan, analyzing the obtained results and then writing the thesis.</p>
3.B- Intellectual Skills:	<p>3.b-1 Analyzing the problem, and critically evaluating and selecting suitable approaches and methods in solving the problem.</p> <p>3.b-2 Provide and bridge connections between different areas of knowledge related to hydrogeology and water resources management.</p>
3.C- Professional Skills:	<p>3.c-1 Hypothesize scientific problems and plan suitable design to solve concerning hydrogeological problems.</p> <p>3.c-2 Design, implement and/or test solutions, and evaluate the results,</p>

<p>3.D- General Skills:</p>	<p>3.d-1 Demonstrate self-direction, personal responsibility and initiative in achieving the main goals of hydrogeological research.</p> <p>3.d-2 Present reports in seminars effectively in the field of the thesis and related issues.</p> <p>3.d-3 Use appropriate computer program packages to simulate the problems.</p> <p>3.d-4 Assess himself and identify his personal learning needs.</p> <p>3.d-5 Use of different sources for information and knowledge(e.g. libraries and internet research engines).</p> <p>3.d-6 Manage scientific meetings according to the available time.</p> <p>3.d-7 Show independent learning ability required for continuing professional development of hydrogeologic research and consultants.</p>
<p>4- Course content: (theoretical and then practical)</p>	<p><u>key stages of Ph.D. thesis work are highlighted as follows:</u></p> <ul style="list-style-type: none"> <input type="checkbox"/> Problem identification, Preparatory lectures and project topic definition <input type="checkbox"/> Knowledge acquisition and literature review preparation <input type="checkbox"/> Solution development, Result evaluation and documentation <p>- Overall organization of the thesis</p> <ol style="list-style-type: none"> a. Introduction b. Literature Review c. Aims d. Methodology e. Results f. Discussion g. Conclusion h. References i. Arabic and English summery
<p>5- Teaching and learning methods:</p>	<p><u>Learning and teaching strategies to be used:</u></p> <ol style="list-style-type: none"> 1) Self-learning and supervision sessions with supervisors 2) Supervision sessions with supervisors and self-initiated investigations or field work 3) Research and reading the literature. 4) Discussions with supervisors 5) Regular supervision sessions with supervisors, and regular outcomes Presentations 6) Relevant course modules and field visits 7) Practical lab classes and software development 8) Practice under guidance of supervisors 9) Final dissertation and presentation
<p>6- Teaching and learning methods for limited capability students:</p>	
<p>7- Students assessment:</p>	

7.A- Assessment Methods:	Thesis dissertation Oral presentation, discussion and reviewers reports.
7.B- Assessment schedule	At / or after two year of proposal acceptance (at least).
7.C- Assessments Weights	<p><u>I. Thesis dissertation</u> (Grading: accept / accept after modification /reject)</p> <p>1. Overall organization of the thesis (as described in section 4) (20%)</p> <p>2. Content</p> <ul style="list-style-type: none"> • Objective(s) and focus of thesis. • Informative, in-depth coverage of subject(s) • Up-to-date literature review <p>3. Style</p> <ul style="list-style-type: none"> • Grammar, punctuation, sentence structure and flow. • Sufficient sub-headings, • Suitable and legible illustrations. • Uniformed format use in the main text and in the References Section. <p><u>II. Oral Presentation</u> (Grading: accept /reject)</p> <ul style="list-style-type: none"> • Well organized. • Presented within allowed time (30 minutes). • Good illustration of subject. • Good understanding and response to questions.
8- List of Books and references	
8.A- Notes:	
8.B- Essential books:	<p>Groundwater by R.A. Freeze and J.A. Cherry. Prentice-Hall (1979) Basic Ground-Water Hydrology by R.C. Heath. USGS-WSP 2270 (1988) Physical and Chemical Hydrogeology by P.Domenico and F.Schwartz (1991) Introduction to Ground-Water Hydraulics by Gordon Bennett (on CD-ROM) Ground Water and Wells by Driscoll, (1989).</p>
8.C- Recommended books:	<p>Konikow & Reilly (1999): Groundwater Modeling Fetter (1994); Applied Hydrogeology Huntoon (1974): Finite-Difference methods as applied to the solution of groundwater flow problems H. Bouwer (1978): Groundwater Hydrology Literature assigned by course supervisor</p>
8.D- Scientific periodicals, websitesetc	<p>High education ministry library such as Science direct Free scientific journals</p>

Course coordinator:

Head of Department

Prof. Dr. Mohamed Helmi Geriesh

Prof. Dr. M. H. Geriesh

Matrix of intended knowledge and skills of the Thesis

Thesis content (Thesis development stage)	Knowledge & Understanding skills	Intellectual skills	Professional skills	General Skills
Problem identification	A1, A2	B1		D1, D2
Preparatory discussions and project topic definition.	A1, A2	B1, B2	C1	D1, D2
Knowledge acquisition and literature review preparation.	A1, A2	B1, B2	C1	D1, D4
Field & laboratory investigations	A2, A3	B2	C2	D2
acquired data analysis, results evaluation and interpretation	A3	B2	C1, C2	D2, D3, D4
Discussion of results and thesis writing.		B2	C2	D2, D5, D6
Dissertation Viva		B1, B2	C2	D2, D6, D7