Universidade Federal do Espírito Santo

# PUBLIC CALL 06/2019

## SELECTION APPLICANTS 2020/1

MASTER'S DEGREE

## SUMMARY

| | |
|---|---|
| Year: | 2020 |
| Semester: | First |
| Program Coordinator: | DIOGO COSTA BUARQUE |
| Date Call Notice Publication: | October 18th, 2019 |

| | |
|---|---|
| Registration period: | October 18th to November 12th, 2019 |
| Vacancies (regular students): | 22 (twenty-two) |
| Vacancies (special students): | 2 (two) |
| Test Date: | November 18th, 2019 |
| PARCIAL Results: Program's website) | November 20th, 2019 (will be published on the |
| Date for appeal: | November 20th to 22th, 2019 |
| PARCIAL Results: | November 26th, 2019 |
| Date for interview: | November 27th to 29th, 2019 |
| PARCIAL Results: | December 03rd, 2019 |
| Date for appeal: | December 4th and 5th, 2019 |
| FINAL RESULTADO: | December 9th, 2019 |
| Registration dates: | to be announced |
| Start of classes: | March, 2019 |
| Telephone:4009-2324 / Extension *9510 | |
| E-mail: pos.engenhariaamboental@ufes.br | |

Vitória – ES, October 18th, 2019.

Diogo Costa Buarque
Graduate Program in Environmental Engineering
Coordinator

# GRADUATE PROGRAM IN ENVIRONMENTAL ENGINEERING (PPGEA/UFES)

## PUBLIC CALL 06/2019: SELECTION OF APPLICANTS

## (MASTER'S DEGREE – CLASS 2020/01)

The Graduate Program in Environmental Engineering (PPGEA) of the Federal University of Espírito Santo (UFES) is selecting foreign applicants for its master's degree, starting **MARCH 2020**. The program has three focus areas: **AIR POLLUTION, WATER RESOURCES and ENVIRONMENTAL SANITATION**. Classes are taught in Brazilian Portuguese. The target audience of this selection process is applicants who have finished undergraduate courses and/or who hold a master's degree related to the lines of research of PPGEA, and who have projects connected to the professors/supervisors of this Program. Applicants may become full-time or part-time students, but scholarship holders must become full-time students. The master's degree lasts up to 2 (two) years, including the fulfillment of credits in disciplines, development of research and thesis, but it can be extended for 1 (one) more year, due to specific situations.

### 1. APPLICATION

**Date**: All applicants must register in the period between **October 18th** and **November 12th**, 2018.

Notice: applications will be accepted only if they meet the requirements described in Section 2 of this document.

**Address**: Universidade Federal do Espírito Santo, Centro Tecnológico, Secretaria do PPGEA, Prédio CT-VI, sala 210, Av. Fernando Ferrai, nº 514, Goiabeiras, CEP 29.075-910, Vitória - ES, Tel.: +55 27 3335-2324, ramal (extension) *9510

Notice: The documents for application may be sent by mail, through SEDEX, FEDEX or other type of registered mail. For the registration to be accepted, documents must be delivered at the PPGEA Secretariat until **November 12th**, 2018. Applications which do not meet this deadline will not be approved.

**Office Hours**: 9 AM to noon.

**Target Audience**: Professionals with undergraduate courses related to the lines of research of PPGEA and projects of the professors/supervisors of this program (please read carefully Section 4 of this document).

### 2. DOCUMENTS FOR APPLICATION

Documents for application must be sent/delivered in a sealed envelope, with the full name of the applicant and the chosen focus area written on it, organized in the following sequence:

- Application form (Annex 1), with a photo (size 3 x 4cm).
- Score Table of *Curriculum Vitae* [CV] (LATTES/CNPq type, simplified version, for Brazilian applicants) – filled and signed by the applicant (Annex 2)##.
- Spreadsheet for evaluation of Qualifying Stage (fill only the "*Coeficiente de Rendimento Escolar*"/GPA – Annex 3).
- Diploma of undergraduate course** (copy – both sides) or a statement of expected date for graduation, provided by the official department of the higher education institution (copy – both sides).
- Transcript of Records of undergraduate course (copy).
- *Curriculum Vitae* [CV] in Portuguese or English (LATTES/CNPq type, simplified version from http://lattes.cnpq.br, for Brazilian applicants) – print copy.
- CPF and ID card (copies) for Brazilian applicants.

- Voter registration card (both sides copies) - for Brazilian applicants.
- Passport (identification page, with photo – both sides copies) for foreign applicants.

**Notice** (*only for applicants who are applying as regular students at PPGEA*): 2 (two) letters of recommendation from a Professor/Researcher with a Doctoral Degree (Annex 4). They should be sent directly to the PPGEA Secretariat by the Professor/Researcher.

(##) The Score Table will be checked by the Evaluation Commission of each focus area at PPGEA. The applicant must fill it and will be responsible by the information provided on such Table.

(**) The expected date for graduation described in the statement must be before the date of enrolment at the master's degree of PPGEA. Accepting this statement at the application DOES NOT MEAN that the applicant will be enrolled in the course (please check item 10).

**Notices:**

1) The PPGEA Secretariat will not check the documents of the applicants at the moment of application/delivery, since applicants are responsible for the delivery of all documents required in this public call. The applicant is responsible for all information and documents provided in the application, which cannot be changed or added, for any reason.

2) At the end of the selection process, the documents of the applicants who were not approved will be available for at PPGEA Secretariat for 30 (thirty) days. After this deadline, these documents will be discarded.

3) PROOF OF PROFICIENCY IN ENGLISH LANGUAGE. Regular students of PPGEA from a English-speaking country are exempt from this proof. The proof of proficiency in English Language is a requirement for all regular students at PPGEA. Students of other nationalities are required to present the proof of proficiency in English language **up to 5 (five) months after the first enrolment as a REGULAR student at PPGEA**. One accepts the proof (original or copy registered at a notary office) of the following proficiency tests, with the MINIMUM GRADE (between parentheses), taken in the last 2 years, considering the date of presentation at PPGEA: Núcleo de Línguas/Ufes (6,0); VEC Online Score (66-73); Approximate VEC level (11-12), CEFR (B2); Cambridge Exam (FCE); IELTS (5,5-6,0); TOEFL iBT (65-78); TOEFL CBT (183-210); TOEFL ITP (513-547); TOEIC (605-780). **Other proficiency tests will not be accepted**.

4) PROOF OF PROFICIENCY IN PORTUGUESE LANGUAGE. Regular students of PPGEA from a Portuguese-speaking country (*Angola, Cape Verde, Guinea Bissau, Equatorial Guinea, Macao, Mozambique, Portugal, Sao Tome and Principe and Timor Leste*) are exempt from this proof. Students of other nationalities are required to present the proof of proficiency in Portuguese language **up to 5 (five) months after the first enrolment as a REGULAR student at PPGEA**. The only proficiency test of Portuguese language accepted by PPGEA, taken in the last 2 years, considering the date of presentation at PPGEA, is Celpe-Bras (minimum grade: intermediate level) - http://celpebras.inep.gov.br/inscricao/.

## 3. CONFIRMATION OF APPLICATION

The confirmation of application by the Evaluation Commission will depend on the fulfillment of the items described on Section 2 (Documents for Application). The result of the confirmation of applications will be published according to the timetable 2, at the PPGEA Secretariat and on its website (http://www.ambiental.ufes.br/).

## 4. FOCUS AREAS

- The graduate program in Environment Engineering has three focus areas: AIR POLLUTION, WATER RESOURCES and ENVIRONMENTAL SANITATION.
- In the Application Form (Annex 1), the applicant must choose A SINGLE focus area.
- Additional information about focus areas, its lines and research projects can be obtained with PPGEA professors. *One recommends, prior to the application, to contact professors who are offering vacancies* (please check Section 5 of this call), *and who are responsible for research projects which might be of interest to applicants - to check for the professional profile required by such projects and/or related lines of research*.

## 5. VACANCIES AND LINES OF RESEARCH

The graduate program in Environmental Engineering, in this selection process, offers **up to 22 (twenty-two) vacancies** for REGULAR student and **up to 2 (two) vacancies** for SPECIAL student of the master's degree. The distribution of vacancies by professor is done considering the focus area and line of research, according to Table 1, available bellow. PPGEA reserves the right not to fulfill all the vacancies offered.

Notice: Vacancies in this call are offered both to Brazilians and foreigners, under equal conditions of competition.

Table 1. Vacancies and Lines of Research

| **MASTER'S DEGREE** | | | |
|---|---|---|---|
| **Advisor** | **Line of research** | **Vancances for Student:** | |
| | | **Regular** | **Special** |
| **WATER RESOURCES FOCUS AREA** | | | |
| Antônio Sérgio | Coastal and interior water resource management | 2 | 0 |
| Edmilson C. Teixeira | Hydrodynamic aspects of water and wastewater treatment processes | 1 | 0 |
| Julio Chacaltana | Coastal and interior water resource management | 1 | 1 |
| **ENVIRONMENTAL SANITATION FOCUS AREA** | | | |
| Diogo C. Buarque | Hydrology, Hydrossedimentology and Computational Modelling / Rational use of water in built environments | 2 | 0 |
| Edumar R. C. Coelho | Sanitation, energy and product recovery | 1 | 0 |
| Renato Ribeiro Siman | Integrated solid waste management | 2 | 1 |
| Ricado Franci Gonçalves | Water conservation and recovery in built environments/ Energy and nutriente recovey from wastewater and waste | 2 | 0 |
| Sérvio Túlio Alves Cassini | Microbiology applied to sanitation | 2 | 0 |
| **AIR POLLUTION FOCUS AREA** | | | |
| Bruno Furieri | Mathematical and Stochastical Modelling of Atmopheric Processes | 2 | 0 |
| Elisa V. Goulart | Mathematical and Stochastical Modelling of Atmopheric Processes | 2 | 0 |
| Jane Meri Santos | Air Quality in Urban Environments | 1 | 0 |
| | Mathematical and Stochastical Modelling of Atmopheric Processes | 1 | 0 |
| Neyval Costa Reis Jr. | Air Quality in Urban Environments | 2 | 0 |
| Valdério Anselmo Reisen | Mathematical and Stochastical Modelling of Atmopheric Processes | 1 | 0 |

## 6. SELECTION CRITERIA

The selection of applicants for the master's degree, by focus area, will be done according to the following items, in the case of Regular or Special student in disciplines:

### 6.1. Regular Students

The selection of regular students comprises two stages: an eliminatory stage (Stage 1, section 6.1.1) and a qualifying stage (Stage 2, section 6.1.2).

#### 6.1.1. Stage 1 – Eliminatory Stage

**a- General Knowledge Test** – multiple choice test about Mathematics, Physics, Chemistry and Biology (please check Annex 5 for contents and bibliography). Applicants are not allowed to use a calculator during the test.

**b- Elimination of Applicants** – applicants who fail to score a minimum of points will be eliminated from the selection, as follows: 1) score a minimum of FOUR QUESTIONS in at least two of the tests (Mathematics, Physics, Chemistry and Biology); and 2) score a minimum of TWO QUESTIONS in the other two tests.

- **From the applicants who are not eliminated**:

✓ The 18 best ranked ones in the multiple choice test who applied for the focus area "AIR POLLUTION" will be allowed to take part in Stage 2 of this selection process.

✓ The 8 best ranked ones in the multiple choice test who applied for the focus area "WATER RESOURCES" will be allowed to take part in Stage 2 of this selection process.

✓ The 18 best ranked ones in the multiple choice test who applied for the focus area "ENVIRONMENTAL SANITATION" will be allowed to take part in Stage 2 of this selection process.

#### 6.1.2. Stage 2 – Qualifying Stage

This stage comprises an interview and analysis of *Curriculum Vitae* [CV]. One should notice that applicants approved for Stage 2 (according to Section 6.1.1) will be evaluated in the chosen focus area, according to the choice in the application form.

***A) ANALYSIS OF CV.*** The analysis of *Curriculum Vitae* (LATTES/CNPq type, simplified version from http://lattes.cnpq.br, for Brazilian applicants) will be done according to the following items (period of analysis: 60 months prior to the publication of the call):

- Publications (papers published in indexed journals, book and/or book chapters, full and/or abstract conference papers);
- Officially registered internships at undergraduate or higher level;
- "Scientific Initiation" programs;
- MBA and/or master's degree;
- Courses attended at PPGEA as a special student (non-regular student).

The applicant should score his/her curriculum according to Table 3 (Annex 2), based on the CV (LATTES/CNPq type, simplified version from http://lattes.cnpq.br, for Brazilian applicants) submitted. That is, any score indicated on Table 3 should match to the description in the CV. The contents of Table 3 (filled by the applicant) will be checked by the Evaluation Commission.

***B) INTERVIEW.*** It will be conducted by the professors of each focus area chosen by the applicant, with duration of 10-15 minutes, to evaluate the following items:

- Compliance of applicant's professional profile with the lines of research/research projects offered by the professors, according to Table 1.
- Letters of Recommendation.
- Oral communication skills.
- Transcript of Records of undergraduate degree.

In order to register interview scores, the form shown on Table 4 will be used (Annex 3). *Notice: In this form, the applicant should write only the GPA (CR) described in his/her Transcript of Records. This information will be checked by the Evaluation Commission.*

The qualifying grade (N2) of Stage 2 of the selection will be given for the applicant based on the evaluation spreadsheet (Table 4) filled by the Evaluation Commission, considering: the grade (N1) related to the analysis of CV; the professional profile of the applicant; ability to dedicate to the course; letters of recommendation; oral communication skills; transcript of records.

The ranking of applicants (from the first to the last one) will be done in descending order of grades (N2) given to them. *In case of draw of grade N2, for two or more applicants, the applicant with the best grades in "professional profile" will be best placed. If the draw persists, one will use the best grade given for "curriculum vitae"*.

The final ranking of selected applicants (for regular students) will be published as a list per focus area, including lines of research/projects and supervisors. Grades from Stage 1 will not be considered for the final ranking of applicants.

### 6.2. Special Students in Disciplines

The selection of Special Students in Disciplines will take into account all applicants who chose one of the following options in the Application Form/Item 1: "REGULAR STUDENT OR SPECIAL STUDENT IN DISCIPLINES OF PPGEA" or "SPECIAL STUDENT IN DISCIPLINES OF PPGEA". In the first option, one refers to applicants who run for a regular student vacancy and who were not selected for this category. In the second option, applicants who run only for a vacancy of special student in discipline.

The selection of applicants for the option "SPECIAL STUDENT IN DISCIPLINES OF PPGEA" has only a qualifying stage, following the instructions of Section 6.1.2 of this call, that is, the same procedure for a regular student. Applicants for the option "REGULAR STUDENT OR SPECIAL STUDENT IN DISCIPLINES OF PPGEA" will have their N2 grades defined at the end of the selection process for a regular student, which will be used for qualification/selection of applicants who intend to be special students in disciplines. The list of selected applicants will be published according to the focus area. The special student in discipline will be supervised by professor member of PPGEA who has (or has not) offered vacancies for students in this call (Table 1).

## 7. SCHOLARSHIPS

Possible scholarships will be available, provided the requirements to internal criteria of the PPGEA and the availability of scholarship offers by the development agencies.

Any possible offer of scholarships is only for regular students at PPGEA, using competitive criteria. The criteria for distribution of available scholarships at PPGEA are defined by the Scholarship Commission and approved by the board of professors.

***Note (Foreign Applicants):*** *We state that the doctoral degree in Environmental Engineering at Ufes does not require the payment of any tuition fee. However, the student is responsible for using his/her own resources for traveling to Brazil and back to his/her home country, and for purchasing health insurance in Brazil and for presenting a proof of scholarship from funding agency in his/her home country or in Brazil. In Brazil, students can apply for a scholarship in agencies such as: CNPq (www.cnpq.br) and Capes (www.capes.gov.br), and programs like PEC-PG (Programa de Estudantes-Convênio de Pós-graduação)*.

## 8. THE SELECTION COMMISSION

For this call, the selection process will be carried by the Professors who offered vacancies with support of the Selection Commission, whose members are Professor Julio Tomás Aquije Chacaltana (Water Resources), Ricardo Franci Gonçalves (Environmental Sanitation) e Jane Meri Santos (Air Pollution).

Among its duties, the Selection Commission will confirm and publish the applications for the selection process, according to *Section 3 of this call*, and will forward to the Board of PPGEA, for confirmation, the list of applicants approved in this selection process.

*Situations not described in this call* will be decided by the Selection Commission. In the case of appeal against the work of this Commission, the Coordination of PPGEA will perform intermediation, as a first measure to solve disputes. At the moment of application, applicants for this Selection Process become aware and accept the items described in this call.

## 9. DATES AND VENUES

TABLE 2: General Schedule of the Selection Process, including stages of appeal for a results review.

| Stage | Date | Time | Venue/Notice |
|---|---|---|---|
| Publication of Call | October 18th, 2019 | 4 PM | http://www.ambiental.ufes.br |
| Applications | October 18nd to November 12th, 2019<br><br>*If sent my mail, received at PPGEA only until November 12th, 2019* | 9 AM to noon | UFES, CT, Secretariat PPGEA Building CT-VI, Room 210 |
| Confirmation of Applications | November 13th, 2019 | Until 4 PM | UFES, CT, Secretariat PPGEA Building CT-VI, Room 210 http://www.ambiental.ufes.br |
| **STAGE 1** (Tests) | November 18th, 2019 | 9 AM to noon (Math, Physics, Biology and Chemistry) | UFES, CT Building and Room to be announced |
| Results (Stage 1) | November 20th, 2019 | Until Noon | UFES, CT, Secretariat PPGEA Building CT-VI, Room 210. http://www.ambiental.ufes.br |
| Appeal (Stage 1) | November 20th to 22th, 2019 | 9 AM to noon | UFES, CT, Secretariat PPGEA Building CT-VI, Room 210 |
| Result of Appeal | November 26th, 2019 | Until 4 PM | UFES, CT, Secretariat PPGEA Building CT-VI, Room 210 http://www.ambiental.ufes.br |
| **STAGE 2** (Interviews) | November 27th to 29th, 2018 | 9 AM to noon and 1:30 PM to 4:30 PM | To be announced by the research area. Online Interviews may be used. |
| Results (Stage 2) | December 3rd, 2019 | Until 4 PM | UFES, CT, Secretariat PPGEA Building CT-VI, Room 210 http://www.ambiental.ufes.br |
| Appeal (Stage 2) | December 4th to 5th, 2019 | 9 AM to 4 PM | UFES, CT, Secretariat PPGEA Building CT-VI, Room 210 |
| Result of Appeal / Final | December 9th, 2019 (maximum deadline) | Until 4 PM | UFES, CT, Secretariat PPGEA Building CT-VI, Room 210 http://www.ambiental.ufes.br |
| Enrolment (*) | To be announced | To be announced | UFES, CT, Secretariat PPGEA Building CT-VI, Room 210 |

**(*) Notice:** applicants approved in this selection process can only become PPGEA students after enrolment in the program, in the dates and times to be announced by e-mail and on the website. The approval of any applicant in this selection process will not be valid if such applicant does not enroll in the appropriate period.

# ANNEX 1

**APPLICATION FORM FOR SELECTION OF STUDENTS FOR**

***MASTER'S DEGREE***

Photo
3 x 4 cm

**01- CHOICE OF APPLICATION:**

( ) REGULAR student at PPGEA

( ) REGULAR student or SPECIAL STUDENT IN DISCIPLINES at PPGEA

( ) SPECIAL STUDENT IN DISCIPLINES at PPGEA

**02- CHOICE OF FOCUS AREA:**

( ) AIR POLLUTION ( ) WATER RESOURCES ( ) SANITATION

**03 - CONDITION TO DEDICATE YOURSELF TO THE COURSE (40h per week):**

( ) ONLY WITH SCHOLARSHIP ( ) WITH OR WITHOUT SCHOLARSHIP

**04 - APPLICANT'S DATA:**

Name:_____

Address:_____

District:_____ City:_____

Postal code:_____ State: _____ Tel:_____

Mobile: _____ Email: _____

Marital Status: _____ Date of birth: _____/_____/_____

Nacionality:_____ Place of birth_____

CPF/PASSPORT number: _____

*Brazilians applicants*: ID. _____ Issuing Agency. _____ Date of Issue_____

**05 - EDUCATION:**

Undergraduate course: _____

Institution: _____

Beginning: _____ / _____ / _____ End: _____ / _____ / _____

Graduate Course:

- MBA ( ): _____

- Master's Degree ( ):_____

**06 - PROFESSIONAL DATA:**

Company:_____ telephone:_____

Address:_____

City: _____ State_____ Weekly hours: _____

Position:_____

**Place _____, Date_____**

_____
Applicant's Signature

# ANNEX 2

## CURRICULUM VITAE SCORE

*(**WARNING**: SCORE CV ONLY WITH INFORMATION FROM THE LAST 60 MONTHS)*

TABLE 3: Curriculum Vitae Score (***to be filled by the Applicant***)

| CV Evaluation Item (##) | Single Score | Maximum Score | Total Score (**) |
|---|---|---|---|
| Publications in indexed journals with QUALIS/CAPES($$) A1 (in the CAPES Area related to the applicant`s undergraduate course or master's degree) | 1,00 | 6,0 | |
| Publications in indexed journals with QUALIS/CAPES($$) A2 (in the CAPES Area related to the applicant`s undergraduate course or master's degree) | 0,85 | | |
| Publications in indexed journals with QUALIS/CAPES($$) B1 (in the CAPES Area related to the applicant`s undergraduate course or master's degree) | 0,70 | | |
| Publications in indexed journals with QUALIS/CAPES($$) B2 (in the CAPES Area related to the applicant`s undergraduate course or master's degree) | 0,50 | | |
| Publications in conferences (full paper) | 0,20 | 2,0 | |
| Publications in conferences (abstract) | 0,10 | | |
| Author of technical books | 1,00 | 3,0 | |
| Author of chapters of technical books | 0,40 | 3,2 | |
| MBA (>= 360h), per certificate | 0,20 | 0,4 | |
| Master's degree, per diploma | 1,00 | 2,0 | |
| "Scientific Initiation" (each 6 months) | 0,20 | 1,6 | |
| Internships (each 6 months) | 0,10 | 0,6 | |
| Disciplines taken in PPGEA (passed) | 0,20 | 0,6 | |
| **TOTAL (N1)** | | 19,4 | |

(**) Total of points to be calculated by the applicant. The score table will be checked by the Evaluation Commission of the Selection Process. The applicant is responsible for the information provided here, with the possibility of disqualification in the Selection Process.

(##) Each item of evaluation of CV must be proven, by attaching (at the moment of application) a copy (one or two pages) of a supporting document.

($$) https://sucupira.capes.gov.br/sucupira/public/consultas/coleta/veiculoPublicacaoQualis/listaConsultaGeralPeriodicos.jsf

NAME OF APPLICANT: _____

FOCUS AREA:
( ) AIR POLUTION
( ) WATER RESOURCES
( ) ENVIRONMENTAL SANITATION

**Place _____, Date_____**

_____
Applicant's Signature

# ANNEX 3

**Evaluation of Qualifying stage**

(To be filled by the Evaluation Commission; except for GPA/CR)

TABELA 4: Spreadsheet of Evaluation – 2nd stage of selection

| Evaluation Item | Score Range | Score Range (Special students in Disciplines) | Obtained Score |
|---|---|---|---|
| Curriculum Vitae (N1M)** | 0,0 – 4,0 | 0,0 – 4,0 | |
| Compliance of applicant's professional profile to the lines/research projects offered by professors according to Table 1 | 0,0 – 3,0 | 0,0 – 4,0 | |
| Letters of recommendation (only for regular students)$$ | 0,0 – 1,0 | | |
| Oral communication skills | 0,0 – 1,0 | 0,0 – 1,0 | |
| Transcript of Records## | 0,0 – 1,0 | 0,0 – 1,0 | |
| **TOTAL (N2)** | | | |

(**) **N1M: N1 Grade Modified (Modified Grade of Curriculum Vitae):**

$$N1M = N1\_N * 3,5/10$$

**N1_N is the N1 Grade Normalized:**

$$N1\_N = (N1 \times 10) / N1max$$

where N1max is the highest grade obtained by the applicant of the focus area at PPGEA chosen by the applicant and N1 the score of *Curriculum Vitae* (Table 3)

(##) **Transcript of Records: GPA (CR) = _____**

a) GPA less than 5,0: Score = 0,0
b) GPA between 5,0 e 7,0: Score = 0,3
c) GPA between 7,0 e 8,5: Score = 0,6
d) GPA between 8,5 e 10,0: Score = 1,0

($$) **Letter of recommendation:**

Score to be given by the Evaluation Commission of the focus area of the applicant, considering the global assessment of the two letters of recommendation.

NAME OF APPLICANT: _____

FOCUS AREA:
( ) AIR POLUTION
( ) WATER RESOURCES
( ) ENVIRONMENTAL SANITATION

# ANNEX 4

## LETTER OF RECOMMENDATION – MASTER'S DEGREE

**FIELD A – TO BE FILLED BY THE APPLICANT:**
Dear candidate, please fill item 1 of field A, and send this form to an evaluator of your choice who holds a doctoral degree. The evaluator can be a professor, a technical supervisor or equivalent.

**A.1.Applicant's Data:**
Name: .....
Undergraduate Course: .....
Date of Graduation: ….....
Home Institution: .....

**FIELD B – TO BE FILLED BY THE EVALUATOR:**
Dear evaluator, please fill this form and send it (sealed) to the applicant or to the secretariat of PPGEA.
This form is part of the selection process of the MASTER'S DEGREE in Environmental Engineering. If you do not know the applicant well enough to provide the requested information, leave item B.2 blank.

**B.1 Evaluator Data:**
Name:.....
Highest level of Education: ….....
Institution where you got the degree described above.....
Institution or company where you work:.. .....
Position: .....

**B.2 Evaluation of applicant:**

- **I have known the applicant for ..... (years) as:**
  ( ) na undergraduate student. ( ) supervised student in final project
  ( ) supervised student in scientific initiation ( ) researcher in a project.
  ( ) others (specify) .....

- **Out of ____ people that I met in similar situations, teh applicant is ranked as**:
  ( ) among the 5% best (10 points) ( ) among the 50% best (4 points)
  ( ) among the 10% best (9 points)) ( ) among the 50% worst (0 points)
  ( ) among the 20% best (7 points)

- **Classifique o candidato em relação aos seguintes aspectos**:

| | |
|---|---|
| Intelectual Skills: | poor 0 1 2 3 4 5 6 7 8 9 10 excellent |
| Individual Work skills: | poor 0 1 2 3 4 5 6 7 8 9 10 excellent |
| Team Work skills: | poor 0 1 2 3 4 5 6 7 8 9 10 excellent |
| Iniciative: | poor 0 1 2 3 4 5 6 7 8 9 10 excellent |
| Creativity: | poor 0 1 2 3 4 5 6 7 8 9 10 excellent |
| Oral and written expression. skills: | poor 0 1 2 3 4 5 6 7 8 9 10 excellent |

**B.3 In your opinion how is the applicant suited to a postgraduate course?** (mandatory)
poor 0 1 2 3 4 5 6 7 8 9 10 excellent

Date _____/_____/_____ _____
Signature of Evaluator

***Options for sending mail:*** 1) Secretaria do PPGEA. Centro Tecnológico. Universidade Federal do Espírito Santo. Prédio CT-VI, sala 210. Av. Fernando Ferrari, nº 514, Goiabeiras. 29075-910 Vitória-ES; 2) e-mail: pos.engenhariaambiental@ufes.br, em arquivo PDF ou JPG. Assunto da mensagem: Carta de Recomendação - Nome Candidato – Seleção PPGEA

# ANEXO 5

## GENERAL KNOWLEDGE TEST

(The use of calculator is not allowed)

## *CONTENTS AND RECOMMENDED BIBLIOGRAPHY*

### PHYSICS

**CONTENT:** 1 – Leis de Newton. Inércia, Movimento, Ação e Reação, Gravitação universal. 2 – Movimento de uma partícula. Vetores. Deslocamento. Velocidade. Aceleração. Movimento unidimensional, bidimensional e tridimensional. 3 – Propriedades físicas dos fluídos. Massa específica, Peso específico, Tensão superficial, Modulo de compressibilidade, Pressão de vapor, Calor específico, Viscosidade. 4 – Cinemática dos Fluidos. Trajetória, Linha de corrente, Circulação, Rotacional. 5 – Hidrostática. Capilaridade, Empuxo, Forças sobre superfícies planas, Manômetros. 6 – Dinâmica dos Fluidos. Força, Quantidade de movimento, Energia cinética, Energia potencial. Equação de Bernoulli. 7 – Termodinâmica e Transferência de Calor. Leis da Termodinâmica. Condução de calor, Convecção de calor.

*Bibliografia Recomendada:*


RESNICK, Robert; HALLIDAY, David; KRANE, Kenneth S. *Física*. 4. ed. Rio de Janeiro: Livros Técnicos e Científicos Editora S.A., 1996.

STREETER, Victor L.; WYLIE, E. Benjamin. *Mecânica dos Fluidos*. 7 ed., São Paulo, MacGraw-Hill do Brasil, 1982.

TIPLER, Paul A. Física Para cientistas e engenheiros: Gravitação, Ondas e Termodinâmica. Vol. 2, 3.ed., LTC – Livros Técnicos e Científicos Editora S. A., 1995.

FOX, Robert W.; McDonald, Alan T., *Introdução à Mecânica dos Fluidos*. 4 ed., LTC – Livros Técnicos e Científicos Editora S.A., 1998.


### MATEMATICS

**CONTENT:** (1) Cálculo: Derivadas de polinômios (expoentes inteiros e fracionários). Máximo e mínimo de funções polinomiais. Integrais definidas e indefinidas de funções polinomiais. Representação gráfica de funções (linear, quadrática, exponencial e logarítmica). (2) Estatística descritiva: População. Amostras. Tabelas de freqüências. Histograma. Medidas de tendência central (média e mediana). Medida de dispersão (variância e desvio padrão). Estimativa dos parâmetros populacionais; média e variância. Intervalo de confiança. (3) Álgebra linear: sistema de equações lineares e matrizes.

*Bibliografia Recomendada:*


THOMAS, George B. Jr.; FINNEY, Ross L.Cálculo e Geometria Analítica Rio de Janeiro: Livros Técnicos e Científicos, 1988.

SIMMONS, George F. Tradução de Seiji Hariki. Cálculo com Geometria Analítica. São Paulo: Macgraw-Hill do Brasil, 1987.

FONSECA, Jairo Simon da; MARTINS, Gilberto de Andrade; TOLEDO, Geraldo L. Estatística Aplicada. 2. ed. São Paulo: Atlas, 1985.


### BIOLOGY

**CONTENT:** (1) Biologia celular e metabolismo: Células procariótica e eucariótica; sistemas de classificação dos seres vivos; caracterização dos microrganismos: vírus, bactérias, algas, protozoários, fungos; tipos de metabolismo e nutrição dos seres vivos; metabolismo heterotrófico: respiração e fermentação; metabolismo autotrófico: fotossíntese e quimiossíntese; enzimas e cinética enzimática. Genética microbiana. Biotecnologia e DNA recombinante. (2) Ecologia: Ecossistemas, habitat, nicho, níveis tróficos, comunidades; interações entre seres vivos: comensalismo, mutualismo, sinergismo, antagonismo, competição, neutralismo. Comunidades aquáticas: fitoplancton, zooplancton, bentos; ciclos do carbono, nitrogênio, fósforo e enxofre na biosfera.

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TORTORA, GJ. Microbiologia. Artmed Editora SP. 8ª. Edição 2005

ODUM, Eugène. Ecologia. Rio de Janeiro: Guanabara Koogan, 1988.


### CHEMISTRY

**CONTENT:** (1) Química inorgânica: Soluções; equilíbrio químico; reações redox; cinética química e ordens de reação; ácidos, bases, sais, pH, pKa, sistemas tamponantes. (2) Química orgânica: Propriedades dos compostos orgânicos; compostos alifáticos e aromáticos; mecanismos de reações; compostos naturais: carboidratos, óleos, gorduras e proteínas.

*Bibliografia Recomendada:*


MAHAN, Bruce H. Química: um curso universitário. São Paulo: Edgar Blucher, 1986.