Renewable& Alternative Energy Sources (R&AES)- Research Activity

R&AES- Research project proposal (Research Review), MSc-project proposal

RESEARCH ACTIVITY
ERR=ENERGY Research Review
ERP=ENERGY Research Projects

HOW TO PERFORM A RESEARCH REVIEW ;
PROPOSAL FOR MSC PROJECTS/ PHD; MSC DISSERTATION, PHD THESIS

These tasks are part from your weekly research activity counted with 6 credits on each semester and dissertation counted with 12 ECS

This course is delivered by TAs, who are normally PhD/post doc students. You will be one in a group of about 10 students, all majoring in the same MSc specialism as you. Each group is assigned to a TA and subjects are delivered in Annex 1: Specialisms

Note:
This material is a collection of expertise and experience from lot of teachers who developed a series of instructions about how to be you in research, engineering, technology (1. National Science Foundation-USA: Interdisciplinary education at graduate level, Transformative Research.2. UK- education system: Birmingham, Bath, NewCastle and Edinburgh School of Informatics- Alan Bundy)

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Contents

Aims and objectives

The aim of this module is to teach the methodologies of and the skills for conducting research in Renewable and Alternative Energy Sources.

We will address questions such as:

- What and how much is science, engineering, technology or both?
- What are the big scientific questions that World seeks to answer to appropriate resources for energy supply and demand, climate change, new fuels, CO2-capture ?
- What constitutes an experiment in Energy sources, and related field?
- Do we propose and test hypotheses in Energy? If so, what form do these take and where do we look for the evidence that tests them?

After taking this module, students should be able to:

- Understand and apply various methodologies;
- Conduct and report on a literature survey of a small area of Energy research;
- Present a seminar on an area of Energy research;
- Review research papers;
- Deploy their transferable skills (TransSkills) of reading, writing and design, more effectively.

Syllabus

The module will cover: the nature of research; criteria for assessing research; rival methodologies for Energy research and how to combine them; the design of experiments and evaluations; engineering processes appropriate to research; practical advice on conducting research and numerous research skills including: reading, reviewing, presenting, writing, design, *etc*.

Intellectual skills development

The module will cultivate a large number of research-oriented skills. These skills include: accessing and effective searching of physical and electronic knowledge sources; directed and disciplined reading; the ability to review, summarize and critically compare; evaluating techniques and systems; the design of experiments and the use of statistics both to investigate and to evaluate energy systems; clear and succinct, verbal and written presentation; answering questions about a presentation; and knowledge of mechanisms for the design, funding, execution, presentation, assessment and monitoring of research.

Activities

The module will consist of the following components:

- **Lectures**. These will be on topics of interest to the whole class. Illustrative topics are: the nature of Energy sources research; criteria for assessing research; accounts of the various methodologies used and ways to combine them; the design of experiments both to understand natural computation and to evaluate different systems; software engineering processes appropriate to research; how to get a PhD.
- **Student Presentations**. Each student will give a presentation on a topic of current research. Presentation topics will be chosen by mutual agreement between the student and lecturer.
- **Assessment**. This will be by practical exercises. Formal assessment will only apply to. MSc and PhD students may submit practical work, if desired, to obtain feedback.

Assessment

Assessment will be by the following three practical exercises.

1. The best two reviews of a selection of four research papers.
2. An analysis of your project using the ideas you have learnt.
3. For MSc students: A short research paper (a rewrite of one of the review papers).
4. A presentation on a topic of your choice.

The following table gives the proportion of the overall mark allocated to each aspect of assessment and the minimum and maximum time that should be spent on them in hours.

Number	Exercise	Percentage	Time
1-4	2 paper reviews	30%	20hrs
5	Research Paper/Project Analysis	40%	30hrs
6	Presentation	30%	14hrs

These times include preparation time, eg reading/skimming papers, preparing slides, etc. The numbers should be used during electronic submission of items 1-6.

Context

There are no prerequisites for the module. The module is intended for those MSc students intending to do an Energy-related research degree, and for students in their first year of an Master-related research degree.

References

General textbooks are not suitable for a module of this kind. Background and recommended reading, papers for review and slides will be made available electronically or via the libraries. For their presentation and paper rewrite, students will be expected to search for appropriate reading materials in libraries and from electronic sources.

MSC Research projects:

- Major component of your degree, experience real research
- Project proposed in collaboration with faculty Msc-supervisors (Teaching assistant, lecturer, researchers-Dr, or postDocs)
- You select projects you like to do
- Your plan for MSc project is due in Sem-II, the last day in the summer session
- Work over the summer, write a dissertation plan and activities
- Sem III- show your intermediate results and achievements
- Sem IV- writes your MSc dissertation and defends it against supervisors commission

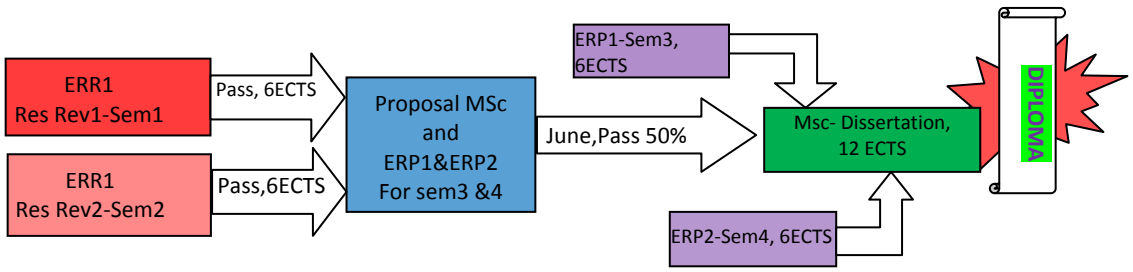
Energy Research Review (ERR1)-learn about the relevant scientific area (Sem-1) – how to read and review a research literature on specific subject

Energy Research Review (ERR2)-learn about the relevant scientific area (Sem-2) - Your review and critical analysis. The aim is to improve your skill in ERR

Energy Research Project (ERP1)-write a detailed plan for your project (Sem-3)- as a part in the MSc project

Energy Research Project (ERP2)-show your achievements and how are they inserted in MSc dissertation, proposal for publication (Sem-4)

MSc dissertation and your research process



For each ERR and ERP you acquire 6 ECTS

Therefore, your individual work, the skill acquired by yourself will be the best evaluated with 36 ECTS (20%)

Structure:MSc dissertation /PhD Thesis

- Introduction: motivation, extended contents.
- Literature Survey:broad and shallow.
- Background:technical introduction.
- Specification:what you required.
- Implementation:what you did.
- Results:how well it worked.
- Related Work:deep and narrow.
- Further Work:what is left to do.
- Conclusion:significance of achievement.
- Appendices:glossary, full results, example traces, selected code, etc.

This structure gives you directions to develop your original contribution in the research field on a specific subject

ERR- what is it?

- Survey of research in area of interest
- May be forerunner to summer project (sem 3 and 4)
    - Choice of project still open after ERR
- Delivered by a teaching assistant or a supervisor (normally a a PhD student or Postdoc)
    - Reflects your specialism
- Approximately 3000 words: not set in stone, can write more (but not expected a lot less)

Why you do it, in ERR?

1. Learn skills of research *reading*
2. Learn skills of research *writing*
3. *Confirm* choice of research area
4. Learn *background* to project area
5. *Compulsory* course in your MSc degree

What you will do in ERR

1. Identify relevant papers and/or seminars: read research papers
2. Keep notes on each paper: how to do it in synthetic phrases, historical organizing of the papers which deal with a research field, seminal papers in field
3. Weave these into a story
4. Write your report
5. Submit your ERR by the end of semester (January, May): electronic submission

ERR &ERP timeline

1. R&AES staff will assign you to a group based on specialization
2. Usually groups, will meet every week, by Friday
    a. Discuss your progress, answer, questions, provide feedback
    b. Tutor of your group will arrange meeting times
    c. Attendance is mandatory- will affect Pass/Fail
    d. Webminares – attendance is accepted (www.3nanosae.org)
3. Bi-weekly TranSkills sessions: Learn efficient planning, critical thinking, writing, presenting (Friday)

Specialism areas: Proposals in annex 1

For each area will be assigned a tutor

Timeline ERR, ERP: scheduled at each beginning of semester

ERR1&2

ERR1

- Introduction, scholarship, searching for papers
- TranSkill- time management
- Refine your ERR topics: Laboratory text editor: word, LaTex, bibliography
- TranSkills: mind mapping
- First draft ERR, feedback from tutor
- TranSkills: Scientific writing
- Complete draft of ERR, feedback from tutor
- Submit ERR1 (January)

ERR2

Rewind ERR1 in high qualification and improved your skill in reading, scientific writing, completion a report on a second topic you choose and you like it to do

ERP1

- What is expected, brief introduction in topics
- TranSkills: Project Planning
- Discuss and refine topic of the project
- TranSkills: Proposal writing
- First draft of ERP, feedback from tutor

- TranSkills: Effective presentations
- Short presentations of proposals (5-10 min, ppt)
- Submit ERP1

ERP2

Rewind ERP1 as final part of your dissertation: show your results and achievements, original contributions, possibility to develop a larger project for a PhD project

Assessment (pass/ fail)

- Your report will be marked by your TA: You will receive feedback on your write up
- Assessment will be based on:
    - Appropriate coverage of the topic
    - Demonstrated understanding of sources
    - Critical evaluation and comparison
    - Clarity of expression and presentation
    - Attendance of the tutorial group

Structure ERR/ERP

- Introduction: identify and motivate topic, international context, national context, why we need this research, expected results, societal impact
- Establish your research purpose, related to a specific field
- Establish your objectives (a swot analysis is recommended)
- Research plan and methodology to reach your objectives
- Main body
    - Summarize each piece of work
    - Give critical analysis
    - Compare and contrast
- Socio economic impact
- Expected results
- Conclusion
    - What is state of the field?
    - Where next?
- Biblography: list all (and only) papers cited

Identifying papers to read

- Select interesting seed papers from:
    - www.sciencedirect.com, isiwebofknowledge.com, scirus, top25 hot papers
    - Quality papers selected by project supervisors for each specialization
- Follow up the citations in the papers you read (the past)
- See who cited papers you read (the future)
- Library on line resources:
    - Library online- accessed by direct access, edu.3nanosae.org, BCU, other sources
    - Cite seer and ISI web of Knowledge
    - Google scholar
    - Gigapedia.com
    - Books.google.com

Reading/listening to a purpose

- Always have questions in mind when reading or listening such as:
- What are the aims and objectives of the works?
- What was achieved?
- What claims are being made?
- Is the supporting evidence convincing?
- Where will my (potential) project fit in?

Typical claims in Energy

- On task Z (what kind of energy sources) along with dimension W (need of energy) , X-kind of energy is better than Y?
- What kind of things are X and Y?: systems, techniques, technologies, new science- research
- What is task Z?

- What is dimension W? behavior, coverage, dependability, efficiency, usability, maintability?

Hypothesis in Energy

- Hypothesis/claims often not stated.
    - When they stated then are based on statistical study on demand –consumption-resources-prediction.
    - In theoretical work, they are based on hypotheses
- Absence in analysis (swot, economical, global) leads to confusion and misunderstanding
- If claim not clear then should be criticized: same if is strong and is not proven
- Evidence may be theoretical or experimental
- Objective may be to identify a hypothesis for subsequent evaluation

Reading to different depth

- Some work is central to your concerns, some less so
    - Need to vary reading depth
    - Some need only skim
    - Some read in depth
    - Some in between
- Could be 20+ papers in total , but only 3 or f4 in depth; you need to cite everything

How to skim

- Read title, abstract, introduction, conclusion, bibliography, key sections
- Identify main contribution of paper
- How does it relate to other work?
- Identify key questions to be addressed and hunt for answers

How to read in depth

- Make several passes over the paper
    - Start by skimming
    - Then read in increasing details
- Apply techniques to your own examples
- Try explaining the ideas to a friend
- Try the referee assistant

Telling a story

- Literature survey is part of motivation
- How did this field develop?
    - How did it start?
    - What are the rival approaches?
    - How do pieces of work relate?
    - Where are we now
    - What remains to be done?
    - What are the hot topics?

Technical writing

- When I read a technical paper, I want to know exactly what is going on
    - It is not a mystery novel; there is no plot, only facts and (maybe) opinion
    - Do not try to write flamboyantly; it confuses the reader
    - Close your thesaurus ; now
    - Use terminology; it is there for a reason
- Struck & white: The elements of style
    - Read it three times a day, with every meal

Examples to avoid

Coming soon

Bibliography

- List all and only papers cited: each paper has specific representations

[Hacker 2000] Hacker A, Introduction in….., Journal, vol , issue, year

- There are several style of publication types: Latex, Word , etc

Pacing yourself

- Work out timetable for reading/writing
- Leave plenty of time for feedback and correction
- Read at a steady pace
- Write as you go

Avoid plagiarism

- Take in account: your original contribution is a small brick in a big house where lot of researchers contribute to building.
- Therefore:
    - Quotations must be acknowledged, including close paraphrase, quote marks and cite source
- Best practice in research: recognize and mark each contribution, use best school guide on plagiarism
- Do not forget: Plagiarism carries serious penalties

ERR: Guidelines for writing a literature review

The purpose of a literature review is to convey clearly and concisely the value of a published body of knowledge to a reader who may not be familiar with the topic in question.

This can be achieved through summary, classification (which different pieces of work are similar to each other?), *contrast and comparison and a critical assessment of the research quality of the articles being reviewed. This involves describing the hypotheses proposed and the evidence presented in favor of their hypotheses, critically evaluating whether that evidence is convincing.*

A literature review can also speculate about possible further applications of the research described (although actually exploring new applications of existing research is a research task in itself, rather than a review of that work!).

The review may be a self-contained unit---an end in itself---or a preface to and rationale for engaging in primary research (this latter aim may be particularly relevant to those students who intend to do nominated projects).

There are many ways in which the material may be organized. Here is just one suggestion. :

- The **introduction** should identify the general topic, issue, or area of concern, thereby providing an appropriate context for the review. it should point out overall trends in the prior research, as well as the major conflicts, and gaps in research. It might also establish the writer's reason for reviewing this particular body of work.
- The **body** of the review should summarise the individual pieces of work, and compare and contrast the approaches where it is merited. You can tell a story about the development of the field, explaining how everything fits together. This part of the review should include a critical assessment as to whether the hypotheses were clearly stated, and whether the research methodologies were well designed (for investigating those hypotheses), whether the evidence for or against a hypothesis was convincing, whether there were important gaps in the investigation and so on. It is also often very helpful to illustrate the similarities and differences among the different models or theories by seeing how they apply to a simple, representative, concrete example. Overall, concrete examples should be used to illustrate how the theory works whenever appropriate.
- The **conclusion** should summarise the major contributions of the prior research, maintaining the focus that was established in the introduction. It should evaluate the current "state of the art", pointing out again any major methodological flaws that were described in the BODY of the review. It should also provide some insight into what the writer thinks would be fruitful future avenues of research in the area.
- A **Bibliography** must be at the end of the paper.

The final literature review should be around 3,000 words.

ERR Marking Guidelines

The ERR assignment should simply be classified as pass or fail, according to the following guidelines.

FAIL:

The literature review is inadequate in several of the *basic criteria*, which are:

- to identify a coherent topic for the review, including a clear statement of a particular hypothesis or hypotheses to be tested;
- to accurately summarise the papers discussed;

- to mention most of the important papers in the area;
- to address several of these papers in detail
- to draw coherent conclusions from the review, especially with regard to the evidence for or against the hypotheses;
- to include an accurate bibliography at the end.

PASS:

The literature review is adequate on the basic criteria. In addition, the review may meet one or two additional criteria, such as:

- a detailed, direct comparison of competing approaches to a problem;
- identifying major gaps in current research;
- using one's own concrete examples to form the basis for the assessment of the literature (and to aid the comparison of competing approaches);
- a clear statement about any basic flaws or strengths that pervade the current research;
- a description of what the student might think would be fruitful future avenues of research.

Activities and Outcomes

Each MSc student must:

- In collaboration with their TA, select 3 or 4 articles from the list of **seed papers** appropriate for the subject they intend to review (ANNEX1). These are to be read in detail. You may also find it necessary to skim through additional articles, and use those in your literature review to relate the research in the 3 or 4 articles that you have chosen. Choosing these articles to read involves learning to search and use databases of scientific literature, as well as searching traditional library resources.
- Critically evaluate the selected articles, learning how to test existing theories and systems on hypotheses and concrete examples devised by the student.
- Deliver a detailed and balanced report on the articles studied.

Skills to be Developed

The literature survey is designed to help you develop the following skills:

- *Reading at different levels of depth.* You cannot read all the papers your survey must cover. Identify the key papers and read them all in the traditional way.
- *Locating relevant papers.* You will be given a few pointers to papers to start you off, but then you are on your own. To discover some more there are various methods. Look in the bibliography of those papers you have already got to identify other authors in the field. This will only take you backwards, however. To go forward look for recent publications by the same authors or other papers on this topic. You can search the library catalogue (some are on CD-ROM). There are publications which give forward pointers, *i.e.* list papers which cite some paper. You can access the www pages of the authors or you can email them. You can skim through relevant journals or conference proceedings. You may find the **Library's online resources** useful for tracking down papers electronically.
- *Organizing the material.* It will not be enough to merely record who said what when. You must try and relate the papers you have read. What were the key ideas and when and by whom did they appear? How were they propagated? What were the dead-ends? What are the rival approaches and the hot issues? Try to tell a story about the development of the research.
- *Managing your time.* The available time can easily be dissipated in undirected reading and fruitless searching. You must structure your activities to make efficient use of your time. Leave plenty of time for writing the report. Do not leave everything until the week before the deadline.

ERR Research Methodologies Student Presentations

Here are the links to the materials you will need for this assessment:

- Presentation Timetable, including: student names, presentation titles, times and session chairs.
- Anonymous Student Presentation Peer Review Form. All members of the audience are encouraged to fill in a copy of this form and return it to the lecturer, who will pass it to the presenter.

Each student is required to give a presentation to the rest of the class on some topic in R&AES. This presentation should be based on 1-6 research papers. The topic and the papers should be chosen to reflect the presenter's interests.

Each presentation should be 20 minutes long with 5 minutes for questions and general discussion. The remaining members of the class will be the audience for the presentation and all members of the class are strongly encouraged to attend and to provide feedback to the presenter.

The presentation is an assessable component of the module, carrying 30% of the total mark. Between 7 and 14 hours is allocated to preparation for it. The mark will be based mainly on the understanding demonstrated of the material presented as well as the quality of the presentation itself.

Skills to be Developed

The presentation is designed to help you develop the following skills:

- *Reading in depth.* The level of understanding of a research paper required to give a presentation on it is deeper than you may be used to. You will probably need to read key bits more than once. You may want to try your own examples on the techniques described. As you prepare your talk you will discover that there are details that you did not quite grasp on first reading and you will have to read them up again.
- *Designing a talk.* In 20 minutes there is no time for padding. Identify the main point(s) you want to convey and go as directly to it/them as quickly as possible. Reiterate this point(s) in title, introduction and conclusion. Give only the background information that is vital to understand the main point(s). Keep a mental model of the state of your audience's understanding: what have you told them so far? did they understand it? what do they need to know to understand the next point?
- *Preparing slides:* Make sure the slides are visible from the back of the room. Use big letters and write clearly (or use typed output). Keep the information content of each slide small. Use short noun phrases as slogans for each point of the argument. Keep the number of slides small, *i.e.* no more than one every 2 minutes: say 10 in total. Prepare your slides well in advance and seek feedback on them. Always visit the lecture room and test out your slides in situ, so you know all the AV works for you. Project your slides and walk to the back of the room to see what they look like. If you decide to use a laptop then share one with your buddy and put both sets of slides on the same machine to prevent those "plug and pray" moments between the talks. Alternatively, you can also use the DICE machine closest to the data-projector. Log into it and get your slides up before the session starts, so there is no delay in starting your talk.

The Mechanics of the Presentation

Presentations will take place in the second half of the module at the times assigned for lectures (plus other times, if necessary), which they will replace. There will be two 25 minute (20 minutes talk, 5 minutes discussion) presentations per 50 minute slot. The two students in each slot may like to act as "buddies", comparing notes, slides, etc before the presentations.

In discussion with the students, the lecturer will prepare a timetable of the presentations. It is inevitable that someone will be first, and hence fairly early in term.

The non-speaking student in each pair will act as session chair for the student who is presenting. Then they will switch roles for the second presentation. The role of the session chair during the presentation will be: to introduce the presenter; to remind the presenter when their time is nearly up and to terminate their presentation if they run overtime; to run the question period, initiating it with a question of their own, if that proves necessary; and to thank the presenter at the end of their presentation.

The lecturer will fill in a pro forma giving feedback and a mark to the presenter. This will be given to the presenter within a week of their presentation. Note that the mark awarded is provisional and must be confirmed by the Board of Examiners.

The other students will also be provided with an anonymous peer review form, which they will fill in during the presentation. To preserve anonymity, these forms will be collected by the lecturer and given to the presenter at a subsequent presentation. These peer review forms do *not* form part of the assessment. It is essential for all students to come to all the presentations: to provide feedback to the presenter and to pick up tips for their own presentation.

Here are some online guides to preparing presentations.

- The Key Steps to An Effective Presentation from Stephen Eggleston.
- Presentation Guidelines from George Mason University.
- Presentation Skills from University of Newcastle.

Please let me know which of these you find most/least helpful and if you find any better ones and I will edit the above list accordingly.

The Short Guide to Effective Presentations

This is by no means the ultimate guide to effective presenting, but scan each point and identify the skills you can improve upon to make your presentations, either individual or in a group, more effective.

- **Determine your purpose:** Every presentation is given for a purpose—even if it is only to share information. Use these questions as a guide:
  - What do I want the audience to *know* when I've finished the presentation?
  - What do I want the audience to *believe* when I've finished the presentation?
  - What do I want the audience to *do* when I've finished the presentation?
- **Analyze your audience.** Once you determine the desired end result, you need to analyze your audience so you can tailor your presentation to your audience's needs. Ask yourself the following five questions about your audience:
  - What is your audience's level of experience or knowledge about your topic?
  - What is the general education level and age of your audience?
  - What is the audience's attitude toward the topic you are speaking about, and—based on that attitude—what concerns, fears, or objections might your audience have?
  - Are there subgroups in the audience that might have difference concerns or needs?
  - What questions could your audience ask about this topic?
- **Gather information**
  Now that you've focused the presentation, you need to find the facts that will support your point of view or the action you propose. Keep in mind you should give the audience only the facts necessary to accomplish your goals; too much information will overwhelm the audience, and too little information will leave the audience either with a sketchy understanding of your topic or with the feeling that you have not provided enough information to support the course of action you wish the audience to take.
- **Structure the presentation**
  Keep the focus on the audience. As listeners, they remember openings and closings best because they are freshest at the outset and refocus their attention as you wrap up your remarks. Take advantage of this pattern.
- **Use visual aids**
  Well-planned visual aids add interest and emphasis to your presentation, and you can clarify and simplify your message because they communicate clearly, quickly, and vividly. Charts, graphs, and illustrations greatly increase audience understanding and retention of the information, especially for complex issues and technical information that could otherwise be misunderstood or glossed over by your audience. You can create and present your visual aids in a variety of media, including flip charts, whiteboards and chalkboards, overhead transparencies, 35mm slides, and computer-presentation software.
- **Practice the presentation,**
  Begin by familiarizing yourself with the sequence of the material—major topics, notes, and visuals—in your outline. Once you feel comfortable with the content, you're ready to practice the presentation itself. Practice out loud, practice with your visuals, and if you can, videotape your practice session. Make eye contact, use movement, use gestures, adjust your vocal inflection and pace, and project your voice.
- **Listen actively**
  Active listening enables the listener to understand and then implement the instructions of a teacher, the goals of a manager, and the needs and wants of customers. As the speaker, you can help by organizing and presenting your message logically and succinctly. As issues and questions arise, screen out personal biases or preconceptions, ask for more information, paraphrase messages, and take notes to help you listen more effectively.

TYPICAL Grading Criteria for Presentations

Overall, presentation grades reflect these attributes:

- A (Exceptional) - Incisive, unique, and highest quality presentation
- B (Above Average) - Appropriate, relevant and good quality presentation
- C (Average) - Sufficient, somewhat relevant and adequate quality presentation
- D (Passing) - Less than sufficient, lacking relevance, and less than average adequacy in quality of presentation
- F (Failing) - Unacceptable presentation
- Evaluation is based on the following nine criteria:

1. preparedness, 2. confidence, 3. appearance, 4. eye contact, 5. enunciation, 6. tone & pace, 7. completeness, 8. transition, and 9. presence in front of an audience

"A" presentations demonstrate the following:

1. Fully prepared presentation with complete knowledge of material and ability to answer impromptu questions;
2. Uses visual aids effectively (focus on audience, not visual aids);
3. Exudes confidence when presenting;
4. Appropriately dressed for the type of presentation;
5. Maintains eye contact with everyone in the audience;
6. Speaking is clearly understood;
7. Maintains an appropriate tone and pace;
8. Smooth transitions from point to point (and to the next speaker if applicable);
9. Maintains an appropriate relationship with the audience

"B" presentations realize 1 through 9 well, but some areas can be strengthened to make the presentation more effective overall.

"C" presentations realize 1 through 9 adequately—and demonstrates overall competence—but contains a few, relatively minor problems or flaws.

"D" presentations fail to realize some elements of 1 through 9 adequately—and contains several, relatively serious problems or flaws, or many minor ones.

"F" presentations fail to realize several elements of 1 through 9 adequately—and contains many serious problems or flaws, and usually many minor ones, as well.

Anonymous Peer Review Form for Student Presentations

Presenter	
Short Title	

1 Content of presentation

Excellent	Good	Satisfactory	Poor	Unacceptable

Positive: Good understanding of material, Clear theme to talk, Good overview,

- Highlighted important points,
- Combined motivational and technical material, Explained hard ideas well,
- Questions handled well.

Negative: Some technical errors, Some material not explained,

- Talk poorly structured,
- Explanation sometimes unclear,
- No technical content.

Comments:

2 Delivery of Presentation

Excellent	Good	Satisfactory	Poor	Unacceptable

Positive: Confident, Clear, Timing good, Consistent pace.

Negative: Nervous at times, Confused sometimes, Delivery sometimes flat, Sometimes hesitant, Sometimes mumbled, Voice too quiet, Ran overtime, Ran undertime, Laboured easy material, Skimmed difficult material, Turned back on audience, Obscured screen.

Comments:

3 Use of audio-visual aids

Excellent	Good	Satisfactory	Poor	Unacceptable

Positive: Clear slides, Right amount of material per slide, Examples used well,

- Diagrams/Pictures/Videos/Tables/Graphs/Colour used well.

Negative: Omitted illustrative examples,

- Would have benefitted from diagrams, tables and/or graphs,
- Slides too crowded, Font too small, Typos on slides.

Comments:

Instructions to Peer Reviewers

Each student, apart from the presenter, should fill in a copy of this form during each student presentation. Note that these comments will be returned to the presenter anonymously.

For each section above the reviewer should tick the most appropriate score box, circle each positive and/or negative comment that applies to the presentation and provide further feedback, if appropriate, in the box provided.

At the end of the presentation, when you have completed the form please return it to the lecturer, who will give it to the presenter.

Instructions to R&AES administrative: Return the form to the student being assessed via their pigeon hole. There is no need to keep a copy. Keep on each file for student activity

Guidelines on Plagiarism

It is a natural and beneficial part of the educational experience for students to discuss their work with each other and to incorporate ideas from many sources into their work. However, there is an important difference between an acceptable use of other people's ideas and copying or sharing other people's work without attribution.

This document sets out guidelines on acceptable and unacceptable behaviour with regard to the question of plagiarism.

The purposes of coursework in the School's teaching include both education and assessment. Assessment tests your personal understanding of material and usually contributes to your individual grade for a course. Outside institutions and employers place a high value on degrees from this. We owe it to our many hard working students to maintain both the standards and the credibility of our degrees.

Plagiarism is viewed by us and the University as a serious offence. Equally, education is at its best when all sides contribute and feel free to discuss ideas. You are strongly encouraged to join in tutorials and feel free to seek any help; your tutor will know where to draw the line. In any case you should always aim to present work in your own words and be able to explain it both to your tutor as well as yourself.

Plagiarism

For assessment to be fair, the extent to which submitted work is your own must be clear. You must not plagiarise other peoples' work, presenting it as your own.

Plagiarism is a serious offence. It is often easy to detect. The School will use a number of detection methods to screen coursework. When plagiarism is detected, penalties appropriate to the problem will be applied, the Head of School will be informed as well as the Faculty of Physics, and your academic record may be amended permanently.

Deliberately allowing your own work to be copied undermines the assessment process. Where there is collusion between students, all students involved may be penalised or disciplined.

Guidelines

There are some general principles in preparing any work:

- You should complete coursework yourself, using your own words, code, figures, etc.
- *Acknowledge your sources for text, code, figures etc that are not your own*.
- Take reasonable precautions to ensure that others do not copy your work and present it as their own.

If you produce your own unassisted work then you are in no danger of plagiarising. However, if your work requires some help or collaboration then you should follow the guidelines below.

It is acceptable to use *general ideas* picked up, for example, in discussion with others, or in textbooks, without acknowledgement. In general, if you write the work you submit, in its entirety, yourself then you do not need to include an acknowledgement. An exception is when a really pivotal idea comes from an external source, in which case you should acknowledge that source.

There are occasions on which you will wish to include work written by somebody else within your own work.

For example, you may be quoting a passage from a book within an essay, or you may be unable to finish a program yourself and require a piece of code written by someone else. On such occasions, you should copy the original work *verbatim* together with a full and explicit acknowledgement of the original source.

The beginning and end of the copied material must be clearly indicated (for example, in the case of copied text you should enclose the text within quotation marks) and the source of the work must be explicitly cited close to where the copied material appears. These rules apply irrespective of the type of work (prose, code, etc.).

If you collaborate on the preparation of all or part of a piece of work then the collaboration must be explicitly acknowledged, and the extent of the collaboration should be stated as fully as possible by all parties involved.

It is always unacceptable to attempt to disguise someone else's work in order to present it as your own, for example by making cosmetic changes to text, or by changing variable names or altering comments in code.

When in doubt, state explicitly what you have done and the sources of any help (including fellow students, tutors or textbooks) you receive. This will enable your work to be marked appropriately, and will ensure that you avoid suspicion of plagiarism.

In order to prevent others from copying your work and presenting it as their own, set the protection on your practical work directories appropriately. It is also sensible to ensure that any practical submissions that you print are collected promptly from the printers. By all means discuss your general ideas with other students, but do not distribute or lend your solutions to them.

Exceptions

Some practicals are done in teams, and are specifically designed to encourage collaboration. In such cases the lecturer will clarify what is expected regarding shared or common material.

ANNEX1

Nr	Specialism area: ENERGY	Themes/subjects	TA/advisor
1	Ecological design, politics, management, Green villages,	1.1a- Green Villages: Modelare Cloud Computing pentru Managementul Optim al Resurselor de Clădiri Ecologice Inteligente 1.1b Intelligent houses, selffsustainable villages: modeling, designing	PhD- Dobrica Bogdan
		Ecological design: green house	selfproposal
		Politics, energy for future, life cycle assessment	ACS- Stamatin Serban
		Energetic audit, basics and software, hardware	Cooperare cu firma AllEnergy
2	Solar – thermal and hybrid systems for solar energy conversion	Thermosolar panels Phase change materials Hybrid systems: solar-thermal & photovoltaics panels: thermal and electrical management	PhD- Visan Dragos
3	Fuel Cells-	• Fuel Cells:Science &technology for PEMFC, Alkaline, Phosphoric, SAFC(solid acid fuel cells), SOFC (solid oxide fuel cells) • Science: new aspects in electrochemical conversion of energy • Technology: Thermal management, electrical management of fuel cells stacks • Nanocatalysts for universal applications in oxidation of fuels (hydrogen, methanol, ethanol, dimethylethers, etc) • Nanocatalyst for universal cathode reduction reaction • Nickel- Raney: nanometric structures and its role in redox reaction for fuel cells • Graphenes, Carbon Nanotubes: support for nanocatalyst and gas diffusion layer	
4	Materials with protonic conduction	• Mechanisms of protonic and superprotonic conduction: Superprotonic conductors • Systems: nanocomposites based on polymers for membranes with protonic conduction	
5	Flexible solar cells, Polymer solar cells	• Large scale designing flexible solar cells and DSSC using ultraspray coating (prism300)	
6	Electrochromic devices,	Intelligent windows- electrochromic polymers, electrochromic cells	
7	Hydrogen storage and generation	• PEM- electrolyser; New alkaline electrolyser- systems • Photoelectrochemical hydrogen generation: photoelctrochemical nanocatalysts: TiO2, AlZnO • Hydrogen storage technologies • Nanomaterials for hydrogen storage: Frames of organometallic compounds	
8	CO2- capture	• Physico-chemical methods: conversion in carbonates • Microlage culture for CO2 sequestration &biodiesel production	
9	Wind and tide energy	• The Kinetic energy conversion at very low wind speed: wings-propeller-magnetic engine	
10	Biomass- biohydrogen	• Biodiesel from microalgae	

	Microbiological fuel cells	• Microbial fuel cells: waste water treatment and electricity generation from microorganism metabolism. • Biohydrogen- Bioelectrolysis with microorganisms • Supercritical fluids: polymer conversion, recovering plastic waste	

Nr	Specialism area:	Polymer and Carbon Nanotechnology:Themes/subjects	TA/advisor
1	**Carbon nanotechnology**	• CNT- functionalizing with carboxyl and hydroxyl groups- application in sensors/biosensors • Graphenes: synthesis, applications and polymerization • Structural and electronic properties of carbon nanostructures	
2	**Polymer nanotechnology**	Electroconductive resins based on phenolic resins and retardant catalyst acids Nanocomposites based on electroconductive resins: application in fuel cells, bibolar plates	
	Plasma polymerization		
	Polymers in life sciences	Polymer with molecular recognition Nanodetection of the free radicals Detection of biomolecules by means of nanoparticles/nanostructures: Biosensors based on porphyrins and ptalocyanines Nanoparticles based monitoring of the presence and expression for transgenes for pharmaceuticals purposes Nose sensors Biosensors /sensors for food quality control	
	Supercritical fluids	Effects of Confinement on Phase Transitions in Nanoporous Systems The effects of the nanoscale confinement on selected molecular self-assembly systems	
	Materials for energy saving	Superhydrophobic nanomaterials and formulations – lotus effect	