



Republic of the Philippines  
Department of Education  
National Capital Region  
**DIVISION OF CITY SCHOOLS**  
Quezon City, Metro Manila



September 21, 2011

**MEMORANDUM TO:**

Assistant Schools Division Superintendents  
Division/District Supervisors  
Private/Public Elementary and Secondary School Principals  
Head Teachers/Teachers In – Charge

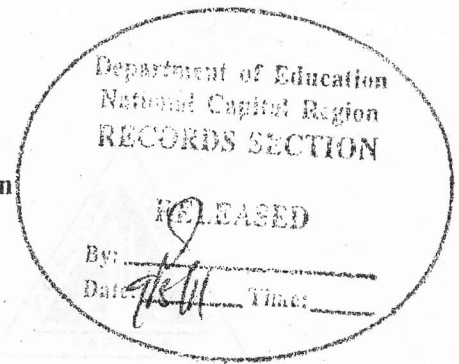
1. Attached is Regional Letter No. 324 from Dr. Elena R. Ruiz, Schools Division Superintendent, Officer-in-Charge, Office of the Regional Director re: **"PISIKaalaman 2011: Luntiang Liknayan"** dated September 1, 2011 which is self – explanatory, for the information and guidance of all concerned.
2. Immediate and wide dissemination of this Memorandum is desired.

**CORAZON C. RUBIO, CESO VI**  
Schools Division Superintendent

SUPERVISORS/JR



**Republika ng Pilipinas**  
(Republic of the Philippines)  
**KAGAWARAN NG EDUKASYON**  
(DEPARTMENT OF EDUCATION)  
**PAMBANSANG PUNONG REHIYON**  
(NATIONAL CAPITAL REGION)  
Daang Misamis, Bago Bantay, Lungsod Quezon  
(Misamis St., Bago Bantay, Quezon City)



**RECEIVED**  
BY: *[Signature]* SEP 14 2011  
**RECORDS SECTION**

September 1, 2011

To: Schools Division Superintendents

Dear Sir/ Madam:

Enclosed is a letter dated August 26, 2011 of **Ms. Justine Patricia Carpio**, PISIKaalaman 2011 Chairperson, Vice President for External Affairs, UP Physics Association, re: "**PISIKaalaman 2011: Luntiang Liknayan**", details of which are self-explanatory, for your information and appropriate action.

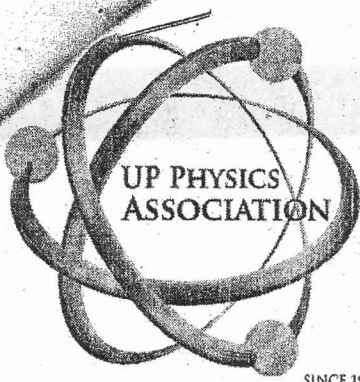
Immediate and wide dissemination of this Regional Letter is desired.

Very truly yours,

*[Signature]*  
**ELENA R. RUIZ**

Schools Division Superintendent  
Officer-In-Charge  
Office of the Regional Director

Regional Letter No. 324  
F10/F13



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University of the Philippines  
Diliman, Quezon City  
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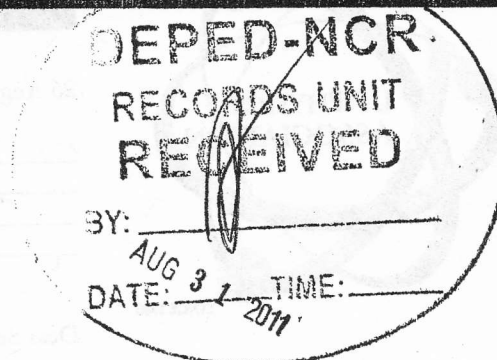
Johnrob Bantang, Ph.D.  
Senior Adviser

Michael Solis, M.Sc.  
Junior Adviser

## UP PHYSICS ASSOCIATION

26 August 2011

Ms. Elena R. Ruiz  
Schools Division Superintendent  
OIC-Office of the Regional Director  
Department of Education  
Republic of the Philippines



Dear Sir:

Greetings!

The **UP Physics Association (UPPA)** is an established academic and non-profit organization committed to the promotion and development of Physics inside and outside the University of the Philippines. For over thirty years now, the UPPA has continuously strived to organize projects that would advance the study and appreciation of physics among students and the general public, and would increase awareness within the Filipino community leading to further research and excellence in the field.

One of those projects is the **PISIKAAalaman**, which features academic physics seminars for students and educators in the secondary level and an interscholastic physics quiz bee among students in the third and fourth year high school levels. **PISIKAAalaman 2010** was held last 13 November 2010 with the theme of superheroes. The attendees comprised of a total of 112 students from 24 different public, private and science schools. It was co-presented by the National Institute of Physics, Meralco and Knowledge Channel, and was sponsored by Smart Communications.


This year, the event is entitled **PISIKAAalaman 2011: Luntiang Liknayan** to encapsulate the theme environmental technology and shall be held on Saturday, **November 26, 2011** at the National Institute of Physics in the University of the Philippines, Diliman, Quezon City.

The UPPA aims to use **PISIKAAalaman** as a tool to encourage excellence in physics and to promote advancements in the standard of secondary physics education. In line with this, we'd like to request for the help of the **Department of Education** with the **endorsement of this activity and the dissemination of information** to high schools in the Philippines, particularly in the National Capital Region (NCR). Your support will further fuel the passion of not only our organization but also of the Filipino youth of today in uplifting our nation through pursuing the advancement of science.

Attached are the project details and a sample copy of the letter of invitation to be sent to the high schools. For any inquiries regarding the activity, please contact us via email at [upphysics@gmail.com](mailto:upphysics@gmail.com) or through the numbers (+632)347-4293, (+63915)199-8599 or (+63908)899-5878.

Thank you very much!

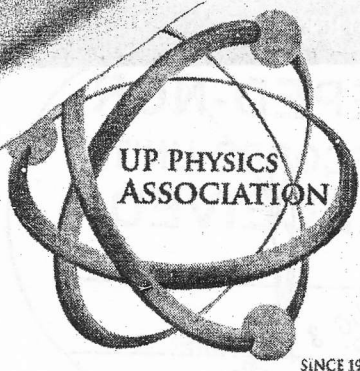
In the spirit of uplifting science,

  
Justine Patricia Carpio  
PISIKAAalaman 2011 Chairperson  
Vice President for External Affairs

  
Eloise Anguluan  
President

Noted:

  
Johnrob Bantang, Ph.D.  
Senior Adviser



## UP PHYSICS ASSOCIATION

26 August 2011

Dear Sir/Ma'am:

Greetings!

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One of those projects is the **PISIKaalaman**, which features academic physics seminars for students and educators in the secondary level and an interscholastic physics quiz bee among students in the third and fourth year high school levels. This year, the event is entitled **PISIKaalaman 2011: Luntiang Liknayan** to encapsulate the theme environmental technology and shall be held on Saturday, **November 26, 2011** at the National Institute of Physics in the University of the Philippines, Diliman, Quezon City.

In light of this, we'd like to invite your school to be part of this activity. **Third and fourth year high school students** are qualified to form a team and join the quiz bee. The seminars are open to interested **educators and high school students of all levels**; participation in the quiz bee is not required to join the seminars.

Attached are the event details, mechanics and coverage. Should you wish to preregister or have inquiries regarding the activity, please contact us via email at [upphysics@gmail.com](mailto:upphysics@gmail.com) or through the numbers (+632)347-4293, (+63915)199-8599 or (+63908)899-5878. For more information, visit <http://www.facebook.com/upphysics/>.

Thank you very much!

In the spirit of uplifting science,

*Justine Carpio*  
**Justine Patricia Carpio**  
PISIKaalaman 2011 Chairperson  
Vice President for External Affairs

*Eloise Anguluan*  
**Eloise Anguluan**  
President

Noted:

*Johnrob Bantang*  
**Johnrob Bantang, Ph.D.**  
Senior Adviser

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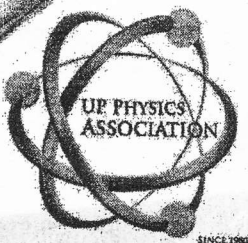
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Junior Adviser





## UP PHYSICS ASSOCIATION

National Institute of Physics  
University of the Philippines, Diliman  
Quezon City, Metro Manila 1101

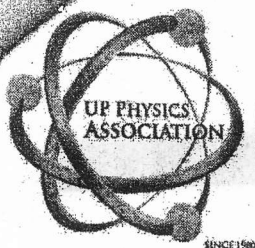
### PISIKAalaman 2011: Luntiang Liknayan MECHANICS

#### C. Qualifying Round

1. An Orientation shall be conducted before the start of the Qualifying Round to give reminders and to relay pertinent information such as additional instructions and possible corrections. All contestants must take note of these reminders and information; the event organizers shall not be held responsible for any consequences resulting from the contestants' lack of attention to the reminders and information.
2. All contestants must ready their **valid school ID**, a **black or blue pen**, and a **scientific calculator** which will be subjected to inspection by the proctors. All memory in the calculator should be cleared.
3. Each contestant will be provided a questionnaire and a blank sheet for scratch work. Additional blank sheets may be requested as necessary.
4. The Qualifying Round shall be a written exam that each contestant must answer individually. Late contestants may still take the Qualifying Round exam but shall not be given an extension or grace period.
5. The questions for this round shall be of multiple choice and fill-in-the-blanks types, with each correct answer for each question item meriting one (1) point. The individual scores from this round will be summed up to produce the team score. The ten (10) teams with the highest team score in the Qualifying Round shall qualify for the Championship Round.
6. Numerical final answers must be expressed in two decimal places, unless specified by the question at hand.
7. Checkers assigned by the event organizers are tasked to correct the Qualifying Round exam. Any inquiries or concerns must be expressed immediately after the Qualifying Round. Should any valid concerns come up regarding the checking process the event organizers shall confer with the panel of consultants, who are designated as the judges for the Championship Round. The decision of the panel of judges is final and not appealable.

#### D. Championship Round

1. The ten (10) teams with the highest team score in the Qualifying Round shall qualify for the Championship Round. The list of qualifying teams shall be announced at the beginning of the Championship Round.
  - a. In case of a tie for the tenth (10<sup>th</sup>) place, all teams vying for that position automatically qualify for the Final Round.
  - b. In case of forfeiture from any of the top ten (10) teams such as dropping out of the competition, teams with the next highest team score in the Qualifying Round shall qualify for the Championship Round.
  - c. Non-appearance during this announcement automatically disqualifies the concerned team from this round. Teams with the next highest team score in the Qualifying Round shall qualify for the Championship Round.
2. All teams must ready their **scientific calculator** which will again be subjected to inspection by the proctors. All memory in the calculator should be cleared.
3. Each team will be provided a whiteboard, a whiteboard marker and a whiteboard eraser for showing their answers; and blank sheets for scratch work. Additional blank sheets may be requested as necessary.



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University of the Philippines, Diliman  
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### PISIKAalaman 2011: Luntiang Liknayan MECHANICS

#### Seminar Program

##### A. Description

1. Two physics-oriented seminar programs will be conducted: one will be for the contestants of the Competition, and the other will be for the coaches and teachers of the contestants.
2. Contestants will get to participate in the student seminar program. Students from **any year level** of the participating high school, who are not registered as contestants, are also invited to participate in the seminar program that will be conducted after the Qualifying Round.
3. Coaches and teachers of the contestants will get to participate in the teacher seminar program that will be conducted simultaneously with the Qualifying Round.

##### B. Guidelines

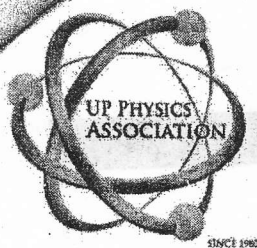
1. Registered teams for the competition must pay the **team registration fee** of only four hundred pesos (**Php 400.00**). Alternate team members and interested students who wish to attend the seminar must pay the **individual registration fee** of only eighty pesos (**Php 80.00**).
2. The PISIKAalaman 2011 will be held within the University of the Philippines, Diliman campus. This implies that the students and teachers from the participating schools must comply with the rules and regulations in application within the campus.

#### Competition Guidelines and Mechanics

##### A. Participants

1. Only bona fide students of a participating high school who are in the third (3<sup>rd</sup>) and fourth (4<sup>th</sup>) year level are eligible to join the competition.
2. Each participating school is entitled to be represented by a maximum of two teams, with each team composed of three (3) students.
3. Each team may be comprised of eligible students from the same level or from mixed levels.
4. Other eligible students may act as alternate contestants and may only join the competition in cases which a team member is unable to compete. The alternate contestant may only enter the competition at the beginning of the Qualifying Round, or at the beginning of the Championship Round provided that the regular team member to be replaced has undergone the Qualifying Round. Having alternate contestants is nonobligatory and is completely under the discretion of the participating school.
5. Interested students or schools are highly advised to express their desire to join the competition by informing the event organizers through the provided contact details on or before **19 November 2011**. Walk-in registrants will still be welcome to join the entire event. Information should include the following:

SCHOOL	
Name:	
Mailing address:	
Telephone number:	
Fax number:	
Email address:	



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### PISIKaalaman 2011: Luntiang Liknayan MECHANICS

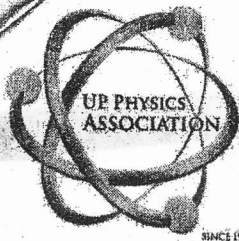
COACH(ES)	
Name:	
Telephone number:	
Cellphone number:	
Email address:	
Team number:	
STUDENTS	
Name:	
Year level:	
Team number:	
Regular or alternate?	
Name:	
Year level:	
Team number:	
Regular or alternate?	
Name:	
Year level:	
Team number:	
Regular or alternate?	

6. The contact details of the event organizers are as follows:

**UP Physics Association**  
National Institute of Physics  
University of the Philippines, Diliman  
Quezon City, Metro Manila 1101  
Tel. (+632) 347-4293  
[upphysics@gmail.com](mailto:upphysics@gmail.com)

#### B. General Mechanics

- The competition shall be composed of two (2) rounds: the Qualifying Round, and the Championship Round. Both will be held on the same day, and the winners of the competition shall be determined and announced before the end of the event. The awards and certificates shall only be given during the Awarding Ceremony right after the Championship Round.
- All contestants and alternates are advised to bring their **valid school ID**, a **black or blue pen** (for the Qualifying Round), and their own **scientific calculator**.
- All calculators must be submitted for inspection to the proctors and the checkers before each round. **Graphing and programmable calculators are strictly prohibited**. Lending and borrowing of calculators between contestants during the Qualifying Round are also prohibited.
- Numerical final answers must be expressed in two decimal places, unless specified by the question at hand.



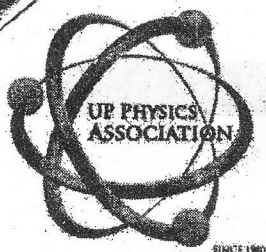
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### PISIKaalaman 2011: Luntiang Liknayan MECHANICS

4. The Championship Round shall be a quiz-bee type of contest open to an audience, where the individual contestants will work with their registered teams. Each team will start with zero (0) points, meaning the Qualifying Round scores will not be carried over to the Championship Round.
5. The Championship Round is divided into three (3) main levels, namely the First Level, the Second Level and the Third Level.
6. Each level shall feature ten (10) questions of mixed degrees of difficulty. The questions shall be of objective, multiple choice and free-response problem-solving types. The time limit and corresponding points to be won shall be specified per question and may not be the same for all questions within the same level.
7. At the beginning of each level, the master of ceremonies shall announce the new level and the team scores at that point before turning the floor over to the quiz master. In between levels, there will be a two-minute intermission. At the end of each level, the cumulative score of each team will be computed and shall be announced by the master of ceremonies.
8. Just before reading each question, each team will be given a copy of the question faced down. At the beginning of each question, the quiz master shall read the entire question and the corresponding time limit twice, after which no repetition of the same will be done.
9. On the first reading, the contestants may already start referring to their copy of the question but may not start writing or using a calculator. On the second reading, the contestants may start writing or using a calculator. Any team caught violating these will be subjected to the following:
  - a. First (1<sup>st</sup>) offense: The team will be given a verbal warning.
  - b. Second (2<sup>nd</sup>) offense: The team will be disqualified from the question at hand.
  - c. Third (3<sup>rd</sup>) and succeeding offenses: The team score will be subjected to a deduction of three (3) points and disqualification from the question at hand per succeeding violation.
10. The time starts at the end of the second reading, at which point the quiz master shall signal by verbal means (i.e. saying "Go" or "Begin"). After the time expires, at which point the quiz master shall signal by verbal means (i.e. saying "Stop" or "Raise your answers"), the teams must show their answer to the panel of judges. Failure to do so automatically invalidates their answer for the question at hand.
11. Numerical final answers must be expressed in two decimal places, unless specified by the question at hand.
12. A protest may be raised by any team to the panel of judges for decision. During the protest, the team has the privilege of consulting any reference, provided they are relevant to the subject of the protest. The panel of judges shall be given a maximum of two (2) minutes to resolve the protest after which the competition shall go on. Should the judges fail to resolve the protest within the allotted time, the question at hand shall be held in abeyance until the same has been resolved.
13. Protests regarding a particular question will only be entertained during the checking of answers, before the next question is read. Once the next question is read, no protest regarding the previous question will be entertained.
14. The decision of the panel of judges is final and not appealable.





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### PISIKAalaman 2011: Luntiang Liknayan COVERAGE

The competition shall test the participants' skills in the different areas of knowledge in physics. The participants should be able to:

#### A. Classical Mechanics

1. Apply vector notations and operations, kinematic equations, Newton's laws of motion, and the conservation of energy in problem-solving.
2. Identify the forces acting on a system.
3. Solve kinematics problems in one- and two-dimensions.
4. Differentiate between potential and kinetic energy.
5. Compute the acceleration due to gravity using various approaches.
6. Solve problems involving elastic and inelastic collisions between two bodies.
7. Solve problems involving rotation, circular motion, angular momentum and its conservation.
8. Solve problems involving Kepler's law of planetary motion, gravity, and gravitational field and potential.
9. Solve statistics problems for systems involving forces such as tension, weight, normal force, friction, and forces due to springs and applied forces.
10. Solve problems related to Hooke's law and simple harmonic motion.
11. Compute the frequency and period of spring-mass and pendulum systems.
12. Apply the principle of superposition and other related concepts.
13. Infer the wave speed, direction of propagation, wavelength, wave number, period, frequency, amplitude and angular frequency from the equation of a harmonic wave; and vice versa.
14. Solve problems involving the Doppler effect in sound waves.
15. Distinguish mechanical from electromagnetic waves.

#### B. Electricity and Magnetism

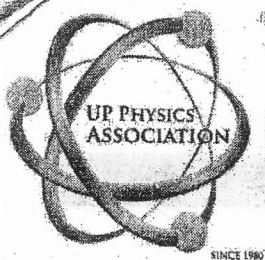
1. Solve conceptual and analytical problems related to electrostatic force, potential, and energy.
2. Compute the electric field and potential due to a system of point charges and/or spheres.
3. Answer conceptual questions involving capacitance.
4. Simplify capacitor circuits.
5. Relate the area, voltage and capacitance in parallel plate capacitors.
6. Solve the voltage, resistance and current in direct current (DC) resistor circuits.
7. Apply the right-hand rule.
8. Determine electromotive forces (emf) and currents in magnetic induction phenomena.
9. Determine the magnetic field and force due to a current-carrying wire.

#### C. Thermodynamics

1. Apply the gas laws and the conservation of energy in problem-solving.
2. Identify the relevant law of thermodynamics in a given situation.
3. Identify the dominant heat transfer mechanism (i.e. conduction, convection or radiation) given a physical situation.

#### D. Optics

1. Apply the laws of reflection and the law of refraction (i.e. Snell's law).
2. Solve problems involving lenses and mirrors.
3. Identify the particular property of images (i.e. real or virtual, magnified or diminished, upright or inverted) in a given situation.
4. Apply concepts in color addition and subtraction.



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### PISIKAalaman 2011: Luntiang Liknayan MECHANICS

15. In case of a tie at the end of the last level of the Championship Round, a Tie Breaker level will be conducted. Questions of any difficulty level and type shall be given until one team gains an advantage in score over the other. The first team to gain the advantage in score will be declared the winner of the tie and will merit the corresponding award. Each correct answer for questions in the Tie Breaker level shall be worth ten (10) points.

#### E. Competition Prizes

1. The winning team declared the **Champion** will receive seven thousand Philippine pesos (Php 7,000.00) in cash, a trophy for the participating school, and gold medals for the individual team members.
2. The winning team declared the **1<sup>st</sup> Runner-up** will receive five thousand Philippine pesos (Php 5,000.00) in cash, a trophy for the participating school, and silver medals for the individual team members.
3. The winning team declared the **2<sup>nd</sup> Runner-up** will receive three thousand Philippine pesos (Php 3,000.00) in cash, a trophy for the participating school, and bronze medals for the individual team members.
4. The third (3<sup>rd</sup>) year high school contestant with the highest individual score in the Qualifying Round declared as the **Highest Scoring Junior** will receive a special award of one thousand and five hundred Philippine pesos (Php 1,500.00) in cash.
5. The fourth (4<sup>th</sup>) year high school contestant with the highest individual score in the Qualifying Round declared as the **Highest Scoring Senior** will receive a special award of one thousand and five hundred Philippine pesos (Php 1,500.00) in cash.