

Republic of the Philippines  
**Department of Education**  
Region VII, Central Visayas  
**DIVISION OF CEBU PROVINCE**  
Sudlon, Lahug, Cebu City



March 18, 2015

Division Memorandum  
No. 179, s. 2015

**TWO-WEEK INTENSIVE SCIENCE ENRICHMENT PROGRAM**

To: Assistant Superintendent  
Education Supervisors/ Coordinators  
District Supervisors/OICs  
Secondary School Heads  
Heads, Private Secondary Schools

1. Attached is Regional Memorandum No. 162, s.2015, entitled, "Two-Week Intensive Science Enrichment Program " .
2. Immediate dissemination of this Memorandum is desired .

  
ARDEN D. MONISIT, Ed.D.  
Schools Division Superintendent

Telephone Numbers:  
Schools Division Superintendent: (032) 255-6405  
Asst. Schools Division Superintendent (032) 414-7457  
Accounting Section: (032) 254-2632  
Disbursing Section: (032) 255-4401

Website:  
E-mail Add :

D 3698765



REPUBLIKA NG PILIPINAS  
REPUBLIC OF THE PHILIPPINES  
KAGAWARAN NG EDUKASYON  
DEPARTMENT OF EDUCATION  
REHIYON VII, GITNANG VISAYAS  
REGION VII, CENTRAL VISAYAS  
Sudlon, Lahug, Cebu City



MAR 13 2015

REGIONAL MEMORANDUM  
No. 162, s. 2015

**TWO-WEEK INTENSIVE SCIENCE ENRICHMENT PROGRAM**

To : Schools Division Superintendents/OICs

1. Enclosed is a letter from Mr. Richard R. Jugar, Chair, University of San Carlos-Science and Mathematics Education Department (USC-SMED), informing this Office on the conduct of the **Two-Week Intensive Science Enrichment Program for High School Science Teachers** on May 4-15, 2015 at the USC-SMED, Talamban Campus.
2. For more details, refer to the attached communication.
3. Participation of interested Science Teachers to this Program shall subject to the discretion of the Schools Division Superintendents, and provisions of DECS Order No. 28, s. 2001 entitled "**Prohibiting the Commercialization of the DECS Organization through Endorsements and Accreditation of Goods and Services**", ensuring compliance therewith.
4. For the information of all concerned.

*Juliet A. Jeruta*  
**JULIET A. JERUTA**  
Schools Division Superintendent  
Officer-In-Charge  
Office of the Regional Director

JAJEBE, Jr/mgb

Office of the Director (ORDir), Tel. Nos.: (032) 231-1433; 231-1309; 414-7399; 414-7325; 255-4542 Field Technical Assistance Division (FTAD),  
Tel. Nos.: (032) 414-7324 Curriculum Learning Management Division (CLMD), Tel. Nos.: (032) 414-7323  
Quality Assurance Division (QAD), Tel. Nos.: (032) 231-1071 Human Resource Development Division (HRDD), Tel. No.: (032) 255-5239  
Education Support Services Division (ESSD), Tel. No.: (032) 254-7062 Planning, Policy and Research Division (PPRD), Tel. Nos.: (032) 233-9030;  
414-7065 Administrative Division, Tel. Nos.: (032) 414-7326; 414-4367; 414-7366; 414-7322; 414-4367  
Finance Division, Tel. Nos.: (032) 256-2375; 253-8061; 414-7321

*" EFA 2015: Kamapagan ng Lahat, Pananagutan ng Lahat "*



February 5, 2015

**DR. JULIET A. JERUTA**  
Schools Division Superintendent  
Officer-In-Charge  
Office of the Regional Director

Dear **Dr. Jeruta**:

Greetings.

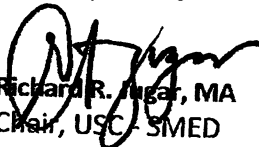
The Science and Mathematics Education Department (SMED) of the University of San Carlos (USC) will be offering a two-week intensive science enrichment program for high school science teachers on May 4-15, 2015. This training is the department's initiative in an attempt to address the content and pedagogical needs of science teachers in teaching science utilizing the spiral progression approach.

In this regard, we would like to express our intent to request for an endorsement from your office so that interested public and private high school science teachers may be allowed to enroll in the program. It is our hope that a good balance of private and public high school science teachers will be able to participate and learn in the said training.


Herewith is the program overview including the details of costs for your reference. We are looking forward to your favorable response on this matter. May this endeavor be of help in furthering the quality of basic education in our region.

Thank you very much.


Sincerely,

  
Richard R. Ingar, MA  
Chair, USC SMED

Noted by:

  
Antonio E. Batomalaque, EdD-ISRM  
Dean, USC College of Education

Endorsed by:

  
Fr. Anthony A. Salas, SVD, MM  
USC Vice-President for Academic Affairs



University of San Carlos  
College of Education

**Science and Mathematics Education Department**

**2-WEEK INTENSIVE IN-SERVICE TRAINING FOR HIGH SCHOOL SCIENCE  
TEACHERS: ADDRESSING THE SPIRAL PROGRESSION  
OF TEACHING SCIENCE IN THE BASIC EDUCATION CURRICULUM**

**Project Objective**

To equip practicing secondary science teachers of the necessary content knowledge and pedagogical knowledge in the teaching of high school science particularly in the fields of physics, chemistry and biology based on the spiral progression approach mandated by the Department of Education.

**Project Duration**

The project is projected to last for 2 weeks with a weekday meeting of 3 hours a day for a total of 30 hours contact time. The schedule is May 04 – 15, 2015.

**Project Description**

The project is a department-based initiative of the Science and Mathematics Education Department (SMED) in its attempt to contribute to the preparation of secondary science teachers in implementing the spiral progression approach of teaching science as mandated by the Department of Education. This approach demands that the four science disciplines of earth science, biology, chemistry and physics be taught in increments for each year level. This is in grave contrast with the practice of discipline-specific year level assignment as practiced in the teaching of science. As of the moment, teacher preparation is still discipline-based. This implies that even the newly graduated science teachers have a particular field of specialization or "major". Further, even if one is a graduate of a general science teacher education program, the number of years spent teaching a particular subject (specialization) renders the teacher less capable of teaching all fields of science as what the spiral progression approach suggests. In an attempt to accommodate the spiral progression approach despite the discipline-based teacher training, schools have devised a number of schemes such as multi-level teaching such that the teacher can teach his or her specialization albeit at different year levels for one grading quarter at a time, team teaching, re-assignment of loads, and the most common method of teaching "by the book or module". Based on initial consultation with our alumni, network of teachers in public and private high schools, as well as the initial research output of the department's research for the academic year 2014-2015, it was found out that high school science teachers are having difficulty teaching the

three disciplines of physics, chemistry and biology under the spiral progression approach. Moreover, the nature of difficulty is relatively distinct: content for physics and chemistry and pedagogy for biology. In line with these challenges, SMED will be offering a two-week intensive training on selected topics of physics of and chemistry as well as pedagogical input particularly on effective methods and strategies of teaching biology. The program will run for 10 days with a three-hour meeting per day. Teacher participants will be taught in-depth topics in chemistry and physics as well as samples of in-class activities that they can use in their respective classrooms. For biology, appropriate strategies for biology teaching will be taught to the teacher participants with emphasis on teaching episodes as well as in-class activities. Daily handouts as well as temporary USC identification cards will be provided to the teacher participants as part of the package. A certificate of completion will also be provided at the end of the project for successful participants. Finally, it will be made clear that this offering is a training program with no credit to any of the undergraduate or graduate offerings of the department.

### **Track Offerings and Fees**

Based on initial projections, one class will have a maximum number of 30 teacher participants per class (3-hour session daily) in order to optimize interaction and processing. With due consideration to faculty qualification, personnel honorarium and facilities utilization, each course/track will cost 1865.00 pesos. This amount will already include their identification cards and handouts. Because the individual courses will only be declared open once the number of enrollees has reached 30, reservation should be made first with the Science and Mathematics Education Department. Advice to pay and securing of ID's will be given once the 30 slots of a particular course are filled. Moreover, the course will be considered as closed and no further enrollment will be allowed.

With three tracks, a total of 90 teacher participants may enroll for the project. If however more teachers will express interest of enrollment, a second group may also be formed that will yield a maximum of 150 (e.g. teacher attends one class in the morning and one in the afternoon) to 180 teacher participants for the entire duration of the program. The arrangement will be one 3-hour class in the morning and another in the afternoon.

For the fees, it is the intent of the department to contact institutions instead of individual teachers so that the teachers themselves will be freed from the burden of paying the required fees. Also, the participation of the teachers will be more meaningful and relatively guaranteed since they will be held accountable by their schools that sent them for the training. Please see Table 1 for the table of tracks with the corresponding faculty and tentative time schedules.

Table 1. Summary Track Offerings

Track	Type of Input	Faculty	Tentative Time	
			AM	PM
Chemistry	Content	Dr. Jocelyn Locaylocay	08:30	01:30 -
Physics	Content	Dr. Nelson Rosaroso	11:30	04:30
Biology	Pedagogy	Ms. Rizza Alfafara		

Note: The afternoon schedule will only take place if the morning schedule is already full.

### Project Resources

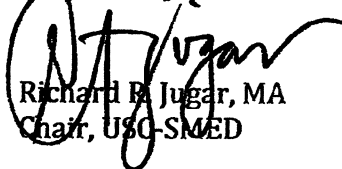
**Venue:** Science and Mathematics Education Department, University of San Carlos – Talamban Campus; Rooms D313, D314 and D318.

**Personnel:** Mr. Richard R. Jugar (Project Director), Dr. Nelson Rosaroso (Physics), Dr. Jocelyn R. Locaylocay (Chemistry), Ms. Rizza Alfafara (Biology), Mr. Martin Zamboangnon (Support 1), Ms. Diana Honoridez (Support 2)

### Project Evaluation

The framework for project evaluation will still be formulated. Impact evaluation will also be performed that will consequently constitute the research offshoot of the project.

Prepared by:

  
Richard R. Jugar, MA  
Chair, USC-SMED

### Summary of Course Input

Day No.	Biology	Chemistry	Physics
1	Nutrients Biomolecules <i>-Lab. Activity: Identification of Macromolecules</i>	Atomic Structure and Periodic Table	Kinematics in 1 and 2 Dimensions
2	Plant Cells Animal Cells <i>-Modular Approach -</i> <ul style="list-style-type: none"> <li>• Strategy 1: <i>Read Around the Text (using the text book as instructional tool)</i></li> <li>• Strategy 2: <i>KIM Vocabulary</i></li> <li>• <i>Lab Activity: The Mystery of the Unknown Life Form</i></li> <li>• <i>The Edible Cell</i></li> </ul>	Quantum Numbers	Uniform Circular Motion and Rotational Motion
3	Cell Transport <ul style="list-style-type: none"> <li>• <i>Virtual Lab</i></li> <li>• <i>Problem Based Approach</i></li> </ul>	Chemical Bonding, Molecular Polarity and Geometry	Impulse and Momentum
4	Photosynthesis <i>-Lab Activity</i> Cellular Respiration <i>-Lab Activity: Fermentation (Yoghourt Making)</i> <i>-Activity: Foldables</i>	Chemical Equations and the Mole Concept	Work-Energy Theorem
5	Cell Division <i>-Activities:</i> <ul style="list-style-type: none"> <li>• <i>Real and Virtual Labs</i></li> <li>• <i>Model Making</i></li> </ul>	Stoichiometry	Simple Harmonic Motion and Waves
6	Genetics: Mendelian and Non-Mendelian <i>-Activity: Simulation</i> <i>Beaker Babies</i>	Solutions and Solubility	Sound
7	DNA Adaptation/Evolution <i>-Activity: Simulation</i> <i>Natural Selection: How is Camouflage an Adaptive Advantage?</i>	Acids and Basis	Optics (Geometric and Wave)
8	Taxonomy <i>-Activity: Using and Constructing a Dichotomous Key</i>	Reaction Rates	Thermodynamics
9	Human Body Systems <ul style="list-style-type: none"> <li>• <i>Games and Puzzles</i></li> <li>• <i>Virtual Labs</i></li> </ul>	Heats of Reaction	Electricity (Concepts and Circuits)
10	<ul style="list-style-type: none"> <li>• <i>Big Brain Group Protocol</i></li> </ul>	Kinetic Molecular Theory and Gases	Magnetism