

Ang Pagtuturo ng Matematika Gamit ang Wikang Filipino

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- ▶ Ang bagong *General Education Curriculum*
- ▶ Matematika sa Makabagong Daigdig
- ▶ Ang pagsasalin sa Filipino ng matematikang terminolohiya
- ▶ Mga textbuk sa matematika na nasa wikang Filipino
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Ang bagong *General Education Curriculum*

Ang bagong *General Education Curriculum* (CHED, 2013) ay malapit nang palitan ang inilarawan sa CHED (1996).

Ang CMO no. 20, s. 2013 (CHED, 2013) ay mga minimong pamantayan para sa pangkalahatang edukasyon ng lahat ng mga *degree program* na naaangkop sa mga pribado at pampublikong mataas na institusyong pang-edukasyon sa bansa.

Pag-alis ng Filipino at mga guro sa Filipino sa bagong GEC (CHED, 2014a)

[...] [T]wo main points were raised about the new General Education Curriculum (GEC): its alleged failure to intellectualize the Filipino language; and its supposed displacement of Filipino faculty.

CHED Memorandum Order No. 20, s. 2013 [...] specifically provides that the entire curriculum or parts of it may be taught in Filipino or English, in keeping with Art. XIV, Sec. 7 of the Constitution, which states: "For purposes of communication and instruction, the official languages of the Philippines are Filipino and, until otherwise provided by law, English." For this purpose, the course descriptions approved by the CHED are written in both languages.

The CHED, moreover, has approved public consultations on the new recommendation of the GE Technical Panel that at least nine (9) units of GE courses must be taught in Filipino, with the choice of courses left to colleges and universities. After the consultations are completed, the Technical Panel will present the findings to the Commission, for final action.

With regard to the displacement of Filipino faculty, the new curriculum has been reduced from 63 units (for humanities and social science majors) or 51 units (for science, engineering and math majors) to 36 units for all students. The 27/15 units removed were not all in Filipino. They also include courses in English, Literature, Math, Natural Sciences, Humanities and Social Sciences. The new GEC, moreover, offers entirely different courses from the old one.

Hence the displacement is not focused on Filipino teachers but spans all the disciplines, and therefore the claim that Filipino teachers alone are displaced is inaccurate, just as the claim that Filipino as the medium of instruction has no place in the new curriculum is also false.

Pahayag ng CHED sa Filipino at ang *Revised GEC*

(CHED, 2014b)

The crafting of the revised GEC started in 2012 and took almost a year of public consultations and public hearings before the CHED Commission En Banc (CEB) finally approved it in March 2013.

A year later, however, college teachers of Filipino courses protested the exclusion of Filipino, raising larger philosophical questions of language and its role in the higher education curriculum vis-à-vis the goals of the revised GEC. The protest coincided with public discussion of real concerns with the potentially adverse impact of K to 12 on the employment of teaching and non-teaching personnel.

In response to the petitions and position papers of teachers of Filipino, the CEB referred the matter to the Technical Panel on General Education (TPGE) for careful review and recommendation.

[..]

The TPGE carefully considered and discussed at length all the positions taken by various individuals and groups, presented their recommendation to the CEB in October 2014 and submitted their report on 17 November 2014.

At its most basic, CHED believes in the fundamental role played by language in education, as manifested in the reforms it has staunchly supported through K to 12, but also of the role of education in the development of language—i.e., the “intellectualization” of a language, in this case Filipino, through its use in academic discourse. To be properly cultivated, Filipino cannot merely be taught as a subject, but must be used in oral and written forms, across academic domains. For this reason, the Commission urges the GE faculty as well as those teaching major courses—since the GEC constitutes only 15% of the units taken by the typical college student—to contribute to the intellectualization of our national language by using it.

But while the use of Filipino across academic domains is desirable, the Commission nevertheless recognizes that the process necessitates a broader effort encompassing different domains and can only be taken gradually, considering the array of socio-cultural, economic and financial constraints related to a shift to the language as medium of instruction. These include: the availability of experts with strong mastery in both the Filipino language and specific domains, the wide use of English in academe and industry, and the possible impact of such move on our students' access to global knowledge and conversations.

To balance the constitutional provisions on developing the national language vis-à-vis the academic freedom granted by the Philippine Constitution to institutions of higher learning, the Commission proposes a two-pronged approach that will ensure the availability of course descriptions and syllabi in Filipino, and more importantly, of instructional materials and of faculty capacity in the teaching of core GE courses in the Filipino language, while at the same time, provide higher education institutions the freedom to respond freely to the needs of their students.

*Without changing the provisions of CMO 20, the Commission shall support such aims by **providing incentives to HEIs that opt to use Filipino in the GE courses or offer several sections of a given course in Filipino and other Philippine languages.** It shall also begin discussions with the Komisyon ng Wikang Filipino (KWF) towards a partnership in developing a long-term plan that integrates said effort with the wider higher education reform agenda. This includes, but is not limited to, the **provision of support and financial incentives for the development of materials in Filipino.** [Ang mga diin ay akin.]*

Finally, the Commission recognizes that the current issue on intellectualization of the Filipino language is closely linked with the very valid concern of Filipino professors regarding possible displacement, a fear equally shared by many faculty members in other disciplines, and by the Commission itself, in light of the upcoming K to 12 transition.

Apart from the support and incentives to be provided for the development of the Filipino language, the Commission assures stakeholders concerned that a K to 12 Transition Plan for Higher Education Institutions is currently being prepared by the Commission, in close coordination with DepEd, TESDA, DOLE and PRC, to mitigate its possible negative impacts, foremost on faculty, while also leveraging this period of transition to upgrade the quality of higher education.

Matematika sa Makabagong Daigdig

Deskripsiyon (CHED, 2013)

Mga elemento ng matematika, pagpapahalaga sa mga praktikal, intelektuwal, at estetikong dimensiyon nito; at gamit ng matematika sa araw araw na buhay.

Makakahanap ng halimbawang silabus (CHED, 2016) sa <http://api.ched.ph/api/v1/download/2775>.

Deskripsiyon ng kurso

Tinatalakay ng kurso ang kalikásan ng matematika, ang pagpapahalaga sa praktikal, intelektuwal, at estetikong dimensiyon nito, at ang pagsasapraktika sa mga kagamitang pangmatematika sa pang-araw-araw na búhay.

Magsisimula ang kurso sa isang introduksiyon sa kalikásan ng matematika bílang pagsusuri sa mga disenyo (ng kalikásan at ng kapaligiran) at bílang pagsasapraktika ng inductibo at deduktibong pangangatwiran. Sa pamamagitan ng pag-aaral sa mga paksang ito, hinihikayat ang mga mag-aaral na lagpasan ang tipikal na pagtingin sa matematika bílang simpleng set ng mga pormula kung hindi bílang isang mulaan ng estetika sa mga disenyo ng kalikásan, halimbawa, at isang mayamang wika sa sarili nito (at sa agham) na pinaiiral ng lohika at pangangatwiran.

Deskripsiyon ng kurso (pagpapatuloy)

Susundan ang kurso ng pagsipat kung paanong ang matematika ay nagsisilbing kagamitan para sa pag-unawa at pagtalakay sa iba't ibang aspekto ng kasalukuyang pamumuhay, tulad ng pamamahala sa pansariling pinansiya, paggawa ng mga pasiyang panlipunan, pagpapahalaga sa mga disenyong pangheometrika, pag-unawa sa mga code na ginagamit sa data transmission at seguridad, at patas na paghahati ng limitadong pinagkukunang-yaman. Ang mga aspektong ito ay makapagbibigay ng mga pagkakataon upang aktuwal na maisapraktika ang matematika sa malawak na saklaw ng mga pagsasanay na makapagpapagitaw sa iba't ibang dimensiyon ng matematika bílang isang paraan ng pagkatuto, at susubok sa pag-unawa at kakayahan ng mga mag-aaral. (CMO No. 20, serye ng 2013)

Balangkas ng kurso

Ang Kalikasán ng Matematika

Matematika sa Ating Mundo

Wika at Simbolo ng Matematika

Paglutas sa Problema at Pangangatwiran

Matematika Bilang Kagamitan

Pamamahala ng Data

Disenyong Pangheometrika

Mga Code

Linear Programming

Ang Matematika ng Pinansiya

Pagbabahagi at Pagboto

Lohika

Ang Matematika ng mga Grap

Matematikal na Sistema

Ang pagsasalin sa Filipino ng matematikang terminolohiya

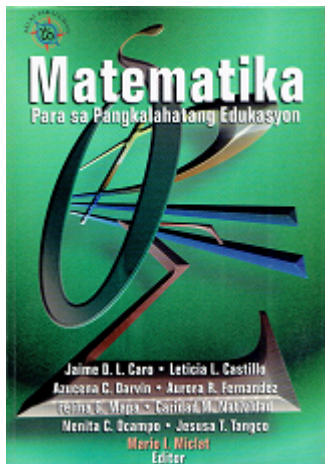
Makakahanap ng pagsasalin sa Filipino mula sa Ingles ng mga teknikal na termino sa matematika sa Ruiz (1979); Sillorequez (1980); Miranda and Miranda (1981); Acelajado (1994); Aldaba (1995–1996); Beltran (1996); at sa Miranda (2015).

Makakahanap ng talahulunganan (o glosari) ng mga teknikal na termino sa matematika (sa wikang Filipino) sa Reyes-Otero et al. (2002).

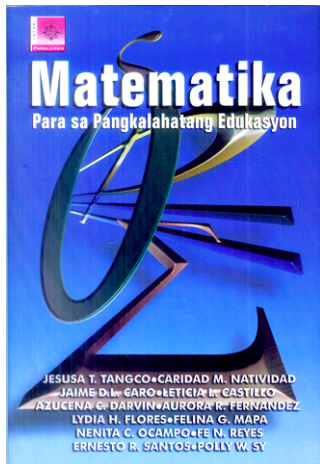
Halimbawa: *Least common denominator*

- ▶ pinakamaliit na lahatang pamamahagi (Sillorequez, 1980)
- ▶ isa-laging pangilalim (Miranda & Miranda, 1981)
- ▶ pinakamaliit at panlahat na denamineytor (Acelajado, 1994)
- ▶ pinakamababang common denominator (Reyes-Otero et al., 2002)
- ▶ isa-huling pangilalim (Miranda, 2015)

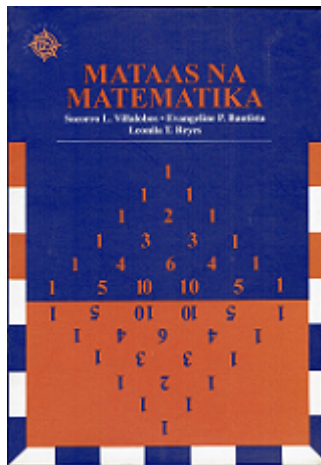
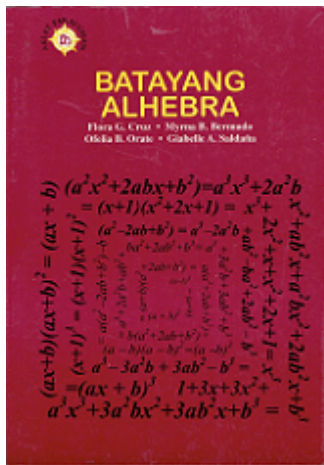
Mga textbook sa matematika na nasa wikang Filipino



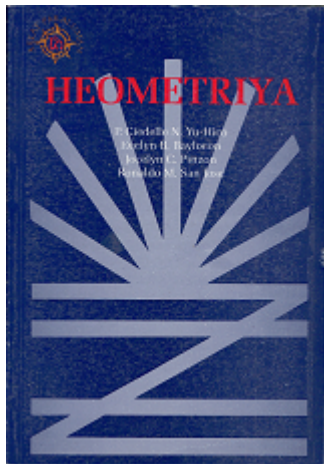
(J. Tangco et al., 1997)



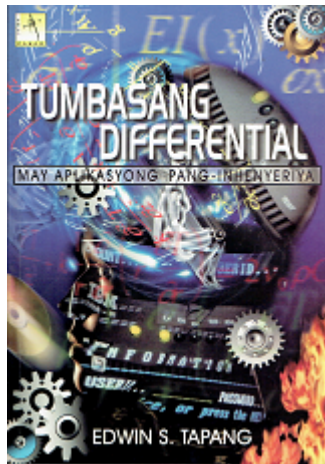
(J. T. Tangco et al., 2002)



(Cruz, Bermudo, Orate, & Saldaña, 1997) (Villalobos, Bautista, & Reyes, 1997)



(Yu-Hico, Baylocon, Pinzon, & Jose, 1996)



(Tapang, 1998)

Tingnan rin ang artikulo ni Ocampo, Ocampo, at Galam (1996).

Mga materyales sa pagtuturo ng matematika sa wikang Filipino

Noong unang bahagi ng 1990's, ang University of the Philippines Integrated School ay may proyektong bumuo ng mga materyales sa pagtuturo ng matematika sa Filipino mula sa Kindergarten hanggang Grade 10 (Punzalan, 1996).

Noong 2013, ang Kagawaran ng Edukasyon (DepEd) ay naglathala ng mga kagamitan ng mag-aaral (sa sistemang pang-elementarya at pang-sekondarya) tungkol sa matematika sa wikang Tagalog (at sa iba pang wika tulad ng Bicol). Makaka-*download* ng mga ito sa <http://lrmds.deped.gov.ph/> ang mga empleado ng DepEd.

Upang makakuha ng karagdagang kaalaman tungkol sa mga tinalakay sa panayam na ito, bumisita sa

<https://matematikasmd.wordpress.com/>

(Ang blog na ito ay hindi kaakibat ang CHED o anumang institusyon.)

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