



Nueva Ecija University of Science and Technology
COLLEGE OF EDUCATION

COURSE CATALOGUE

BACHELOR OF SECONDARY EDUCATION
MAJOR IN SCIENCE



COLLEGE OF EDUCATION

EDUCATIONAL PHILOSOPHY

NEUST believes that education is a transformative and holistic process dedicated to the cultivation of the human potential for sustainable societal development. Grounded in the values of Nationalism, Excellence, Unity, Spirituality, and Transparency, the University adheres to a learner-centric, research-driven, and socially responsive pedagogy. We view knowledge not a static commodity, but as a dynamic construct co-created through rigorous inquiry, innovation, and community engagement. By nourishing the mind with global competencies and nurturing the heart with ethical grounding, NEUST empowers learners to become resilient leaders and active agents of inclusive progress in a connected world.

NEUST VISION

A globally renowned university as champion of sustainable societal development through ethical and empowered human resources.

PANANAW

Ang NEUST ay Pamantasan ng Agham at Teknolohiyang matugunin sa pambansang pangangailangan, napapanahon, at kinikilala sa daigdig.

NEUST MISSION

Advance knowledge generation and innovation, produce globally outstanding graduates, and transform communities towards inclusive progress.

LAYON

Makalinang ng mga bagong kaalaman at teknolohiya, at baguhing-anyo ang yamang katauhan upang maging mabungang mamamayan na magdadala ng kaunlaran at pagbabago sa pambansa at pandaigdigang pamayanan.

COLLEGE GOALS

In line to its commitment to Quality Education, the College of Education has the following goals:

Garner a deep understanding of the philosophical, socio-cultural, historical, psychological, and political foundations of education to foster globally responsive teaching practices.

Leverage subject matter expertise and pedagogical innovations to ensure excellence in local and international educational landscapes.

Optimize learner-centered, inclusive, and technology-driven teaching methodologies suited for diverse and global learning environments.

Build transformative, globally adaptive curricula and instructional strategies that address the evolving demands of education in the 21st century.

Advance the use of information and communication technology (ICT) in teaching, research, and collaboration to promote global connectivity and sustainable education.

Lead in critical, creative, and reflective thinking for planning, monitoring, assessing, and enhancing learning outcomes within local and global contexts.

Commit to ethical, professional, and culturally sensitive teaching standards, addressing the needs of learners in an interconnected world.

Orchestrate lifelong learning, research, and global partnerships to continuously elevate the teaching profession.

Engage in community transformation and education-driven initiatives, fostering inclusivity, equity, and sustainable development.

Drive excellence in education through global networking, cross-cultural exchanges, and continuous professional growth for a more inclusive and progressive society.



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**BACHELOR OF SECONDARY EDUCATION
MAJOR IN SCIENCE**

Based on CMO # 75, s. 2017

COURSE CATALOGUE

Program Description

The BSEd is an undergraduate teacher education program designed to equip learners with adequate and relevant competencies to teach in their chosen area of specialization/major in the secondary level. The program aims to develop highly motivated and competent teachers specializing in the content and pedagogy for secondary education. After successful completion of all academic requirements for the degree/program, graduates of BSEd should be able to practice the teaching profession in the Secondary Level. The BSEd degree program draws from various allied disciplines like social sciences, science, math, technology, languages, and humanities to ensure that the graduates have a mufti-disciplinary preparation in content and pedagogy.

Program Outcomes

1. Demonstrate deep understanding of scientific concepts and principles.
2. Apply scientific inquiry in teaching and learning.
3. Utilize effective science teaching and assessment methods.
4. Manifest meaningful and comprehensive pedagogical content knowledge (PCK) of the sciences.

D. BACHELOR OF SECONDARY EDUCATION MAJOR IN SCIENCE

Program Outcomes	Performance Indicators
a. Demonstrate deep understanding of scientific concepts and principles.	• Display basic and comprehensive understanding of knowledge, principles of the subject matter in the sciences.
b. Apply scientific inquiry in teaching and learning	• Apply the scientific principles in solving current problems. • Uses scientific inquiry in understanding and explaining natural phenomena.
c. Utilize effective science teaching and assessment methods	• Design and utilizes appropriate instructional materials in science. • Employ effective teaching techniques for diverse types of learners in varied learning conditions. • Design and utilizes a variety of appropriate assessment techniques to monitor and evaluate learning. • Provide regular feedback to students



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d. Manifest meaningful and comprehensive pedagogical content knowledge (PCK) of the sciences.	• Utilize appropriate pedagogy and use of technology for the different science content areas. • Demonstrate skills in various methods of teaching-learning in the sciences to include conducting science investigations, making models and prototype, and doing science research. • Create and utilize learning experiences in the classrooms to develop learner’s skills in discovery learning, problem learning and critical thinking.
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Mandatory Courses			
Course Code	Course Title	Pre-requisite	Course Description
NSTP 1	National Service Training Program 1	None	The National Service Training Program (NSTP) aims to enhance the civic consciousness and defense preparedness of the youth by developing the ethics of service and patriotism. It consists of three components: Civic Welfare Training Service (CWTS), Literacy Training Service (LTS), and Reserve Officers’ Training Corps (ROTC). NSTP 1 introduces students to the program’s goals and shared foundations for responsible citizenship and service to the community. Under LTS, students are prepared to serve as teachers of literacy and numeracy skills for school children, out-of-school youth, and other groups in need of these services. Through this component, students develop an understanding of literacy education and community service while contributing to learners’ educational needs.
NSTP 2	National Service Training Program 2	NSTP 1	It provides students with opportunities to apply their preparation in literacy and numeracy instruction through service activities for school children, out-of-school youth, and other community members who need such support. Students participate in planning and carrying out appropriate learning activities, including community immersion, literacy and numeracy skills training, and information dissemination, based on the needs of their partner community. Through these activities, students strengthen their commitment to service, civic responsibility, and the development of the community. The course is consistent with the LTS purpose in Republic Act No. 9163 and the Revised Implementing Rules and Regulations of the NSTP Act.
PathFit 1	Physical Activities Toward Health and	PathFit 1	This course reintroduces the fundamental movement patterns that consist of non-locomotor and locomotor skills,

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	Fitness 1: Movement Competency Training		which are integrated with core training to meet the demands of functional fitness and physical activity performance. Emphasis will be on exercise regression and progression for the enhancement of fitness and the adaptation of movement competencies to independent physical activity pursuits. In conjunction with fitness and wellness concepts, exercise and healthy eating principles, periodic evaluation of one's fitness and physical activity levels, as well as eating patterns will be conducted to monitor one's progress and achievement of personal fitness and dietary goals.
PathFit 2	Physical Activities Towards Health and Fitness 2: Exercise-based Fitness Activities	PathFit 2	This course builds on the foundation of motor skills achieved through core training. It will provide experiences in a variety of exercise programs for the purpose of maintaining and enhancing cardiorespiratory and musculoskeletal fitness (i.e., core stability, muscle strength, endurance and power). It includes speed and agility training with a focus on body coordination and balance. In conjunction with fitness and wellness concepts, exercise and healthy eating principles, learners will be able to enhance their fitness through goal setting and application of the exercise principles (i.e., frequency, intensity, time, type, progression, and volume); adapt their movement competencies to independent physical activity (PA) pursuits and periodically evaluate their PA and eating patterns to monitor their progress and achievement of personal fitness and dietary goals.
PathFit 3	Physical Activities Towards Health and Fitness 3: Menu of Dance, Sports, Martial Arts, Group Exercise, Outdoor and Adventure Activities	PathFit 3	Here are course description tailored for the menu options under PATHFIT 3 (Physical Activities Towards Health and Fitness). These are structured in the standard outcomes-based tertiary curriculum format used for physical education. Through skills training, exercise drills, game play and independent or self-directed PAs, fitness levels will be enhanced. In conjunction with this, fitness levels, PA participation and dietary/eating patterns are evaluated to monitor one's progress and achievement of personal fitness and dietary goals.
PathFit 4	Physical Activities Towards Health and Fitness 4: Menu of Dance, Sports, Martial Arts, Group Exercise, Outdoor and Adventure Activities	PathFit 4	Here are course description tailored for the menu options under PATHFIT 4 (Physical Activities Towards Health and Fitness). These are structured in the standard outcomes-based tertiary curriculum format used for physical education. Through skills training, exercise drills, game play and independent or self-directed PAs, fitness levels will be enhanced. In conjunction with this, fitness levels, PA participation and dietary/eating patterns are evaluated to monitor one's progress and achievement of personal fitness and dietary goals.



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Institutional Courses			
Course Code	Course Title	Pre-requisite	Course Description
CA	Course Audit	All Major, Professional and General Education Subjects	This course deals with the review of the components of the curriculum in all education programs with the primary aim to enhance the competency of students on teaching pedagogy and the nature of learning. The course gives emphasis on three major learning areas- General Education, Professional Education, and Major Subjects. The General Education courses develop the learners’ crucial foundational skills while the Professional Education and Specialization courses allow for the mastery of pedagogical content knowledge for teaching general education subjects.
ELP	English for Teachers	None	English Language Proficiency (ELP): English for Teachers is a language course designed for all pre-service teachers, regardless of field of specialization. The course aims to develop communicative competence necessary for effective teaching, emphasizing English use in classroom instruction, lesson delivery, questioning techniques, assessment language, feedback, collaboration, and academic and professional communication. It focuses on clarity, accuracy, fluency, appropriateness, and confidence in speaking, listening, reading, and writing, particularly in English as a medium of instruction. The course prepares future teachers to use English functionally, ethically, and professionally across diverse teaching contexts, including multilingual and multicultural classrooms. It integrates Philippine educational contexts, Filipino learners and communities, culturally responsive teaching strategies, and educational technologies to ensure relevance, inclusivity, and innovation in teaching. This course is aligned with the United Nations Sustainable Development Goals (SDGs), particularly SDG 4 (Quality Education), SDG 5 (Gender Equality), SDG 9 (Industry, Innovation, and Infrastructure), SDG 10 (Reduced Inequalities), and SDG 16 (Peace, Justice, and Strong Institutions). It promotes Filipino cultural identity, gender- and culture-sensitive pedagogy, inclusivity, ethical professional practice, and the use of innovative educational tools and digital platforms through learner-centered, socially responsive, and contextualized teaching and assessment.



The WORLD UNIVERSITY RANKINGS for INNOVATION

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General Education Courses			
Course Code	Course Title	Pre-requisite	Course Description
Fil 1	Kontekstwalisadong Komunikasyon sa Filipino (KOMFIL)	None	Ang GE FIL 1 (KOMFIL) ay isang praktikal na kursong nagpapalawak at nagpapalalim sa kontekstwalisadong komunikasyon sa wikang Filipino ng mga mamamayang Pilipino sa kani-kanilang mga komunidad sa partikular, at sa buong lipunang Pilipino sa pangkalahatan. Nakatuon ang kursong ito sa makrokanayang pakikinig at pagsasalita, gayundin sa kasanayan sa paggamit ng iba’t ibang tradisyonal at modernong midya na makabuluhan sa kontekstong Pilipino sa iba’t ibang antas at larangan.
Fil 2	Filipino sa Iba’t Ibang Disiplina (FILDIS)	Fil 1	Ang GE FIL 2 (FILDIS) ay isang praktikal na kursong nagpapalawak at nagpapalalim sa kasanayan sa malalim at mapanuring pagbasa, pagsulat, at pananaliksik sa wikang Filipino sa iba’t ibang larangan, sa konteksto ng kontemporaryong sitwasyon at pangangailangan ng bansa at ng mga mamamayang Pilipino. Nakatuon ang kursong ito sa makrong kasanayang pagbasa at pagsulat, gamit ang mga makabuluhang interdisiplinaryong pananaliksik sa wikang Filipino, bilang lunsaran ng pagsasagawa ng pananaliksik na ito (mula sa pangangalap ng datos at pagsulat ng borador ng pananaliksik hanggang sa publikasyon at/o presentasyon nito) na nakaugat sa mga suliranin at realidad ng mga komunidad ng mga mamamayan sa bansa at maging sa komunidad ng mga Pilipino sa iba pang bansa. Saklaw rin ng kursong ito ang paglinang sa kasanayang pagsulat, partikular sa presentasyon ng interdisiplinaryong pananaliksik sa iba’t ibang porma at venue.
GEN ED 1	Understanding the Self	None	The course deals with the nature of identity, as well as the factors and forces that affect the development and maintenance of personal identity. The directive to Know Oneself has inspired countless and varied ways to comply. Among the questions that everyone has had to grapple with at one time or other is “Who am I?” At no other period is this question asked more urgently than in adolescence – traditionally believed to be a time of vulnerability and great possibilities. Issues of self and identity are among the most critical for the young. This course is intended to facilitate the exploration of the issues and concerns regarding self and identity to



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			arrive at a better understanding of one’s self. It strives to meet this goal by stressing the integration of the personal with the academic – contextualizing matters discussed in the classroom and in the everyday experiences of students – making for better learning, generating a new appreciation for the learning process, and developing a more critical and reflective attitude while enabling them to manage and improve themselves to attain a better quality of life. The course is divided into three major parts: The first part seeks to understand the construct of the self from various disciplinal perspectives: philosophy, sociology, anthropology, and psychology – as well as the more traditional division between the East and West – each seeking to provide answers to the difficult but essential question of “ What is the self?” And raising, among others, the question: “Is there even such a construct as the self?” The second part explores some of the various aspects that make up the self, such as the biological and material up to and including the more recent Digital Self. The third and final part identifies three areas of concern for young students: learning, goal setting, and managing stress. It also provides for the more practical application of the concepts discussed in this course and enables them the hands – on experience of developing self-help plans for self – regulated learning, goal setting, and self-care. This course includes the mandatory topics on Family Planning and Population Education.
GEN ED 2	Readings in Philippine History	None	The course analyzes Philippine History from multiple perspectives through the lens of selected primary sources coming from various disciplines and of different genres. Students are given opportunities to analyze the author’s background and main arguments, compare different points of view, identify biases and examine the evidences presented in the document. The discussions will tackle traditional topics in history and other interdisciplinary theories that will deepen and broaden their understanding of Philippine political, economic, cultural, social, scientific and religious history. Priority is given to primary materials that could help students develop their analytical and communication skills. The end goal is to develop the historical and critical consciousness of the students so that they will become versatile, articulate, broadminded, morally upright and



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			responsible citizens. This course includes mandatory topics on the Philippine Constitution, Agrarian Reform, and Taxation.
GEN ED 3	The Contemporary World	None	This course introduces students to the contemporary world by examining the multifaceted phenomenon of globalization. Using the various disciplines of the social sciences, it examines the economic, social, political, technological, and other transformations that have created an increasing awareness of the interconnectedness of peoples and places around the globe. To this end, the course provides an overview of the various debates in global governance, development, and sustainability. Beyond exposing the student to the world outside the Philippines, it seeks to inculcate a sense of global citizenship and global ethical responsibility.
GEN ED 4	Math in the Modern World	None	This course deals with the nature of mathematics, the appreciation of its practical, intellectual, and aesthetic dimensions, and the application of mathematical tools in daily life. The course begins with an introduction to the nature of mathematics as an exploration of patterns (in nature and the environment) as an application of inductive and deductive reasoning. By exploring these topics, students are encouraged to go beyond the typical understanding of mathematics as merely a set of formulas but as a source of aesthetics in patterns of nature, for example, and a rich language in itself (and of science) governed by logic and reasoning. The course then proceeds to survey ways in which mathematics provides a tool for understanding and dealing with various aspects of present-day living, such as managing personal finances, making social choices, appreciating geometric designs, understanding codes used in data transmission and security, and dividing limited resources fairly. These aspects will provide opportunities to engage in mathematics as a way of knowing and to test students' understanding and capacity. (CMO No. 20, series of 2013) The course particularly supports: SDG 4 (Quality Education) by promoting quantitative literacy and critical thinking; SDG 8 (Decent Work and Economic Growth) through financial literacy and responsible economic decision-making; SDG 9 (Industry, Innovation, and Infrastructure) by fostering innovation and technological problem-solving; SDG 11 (Sustainable Cities and Communities) through applications in planning and resource management; and SDG 13 (Climate Action) through the use of



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			mathematical models and statistical tools in environmental analysis. By linking mathematical concepts to sustainable development challenges, the course enables students to appreciate the relevance of mathematics in creating a more equitable, resilient, and sustainable society.
GEN ED 5	Purposive Communication	None	Purposive Communication is an immersive course focused on enhancing students' writing, speaking, and presenting skills for a variety of audiences and purposes. This three-credit curriculum fosters communicative competence and cultural and intercultural sensitivity through multimodal tasks, preparing students for effective, appropriate engagement with multicultural, gender-sensitive, and inclusive audiences both locally and globally. Emphasizing critical analysis, the power of language, and the impact of images, the course equips students with the tools for responsible messaging across oral, written, audio-visual, and web-based mediums. The course emphasizes peace communication and respect for Indigenous Peoples (IPs), promoting equitable and ethical communication in local, global, and digital contexts.
GEN ED 6	Art Appreciation	None	This course provides Bachelor of Secondary Education with specialization in Science with in-depth knowledge and critical exposure to a diverse array of visual, auditory, and performing arts, including indigenous, classical, and contemporary styles from the Philippines and various cultural regions around the world. It emphasizes the development of aesthetic competencies, critical analysis skills, and creative expression while deepening students' understanding of the historical, socio-cultural, and philosophical contexts of various art movements. Furthermore, the course integrates artistic and visual literacy, equipping future English language and literature educators with a strong humanistic foundation to enrich their pedagogical practice and textual analysis.
GEN ED 7	Science, Technology and Society	None	The course deals with interactions between science and technology and social, cultural, political, and economic contexts that shape and are shaped by them. (CMO sNo. 20, series of 2013) This interdisciplinary course engages students to confront the realities brought about by science and technology in society. Such realities pervade the personal, the public, and the global aspects of our living and are integral to human development. Scientific knowledge and technological development happen in the context of society with all its socio-political, cultural, economic, and philosophical underpinnings at play. This course seeks to instill reflective knowledge in the students that they are able to live the good life and display ethical decision making in

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			the face of scientific and technological advancement. This course includes mandatory topics on climate change and environmental awareness.
GEN ED 8	Ethics	None	Ethics deals with principles of ethical behavior in modern society at the level of the person, society, and in interaction with the environment and other shared resources. (CMO 20s 2013)Morality pertains to the standards of right and wrong that an individual originally picks up from the community. The course discusses the context and principles of ethical behavior in modern society at the level of individual, society, and in interaction with the environment and other shared resources. The course also teaches students to make moral decisions by using dominant moral frameworks and by applying a seven-step moral reasoning model to analyze and solve moral dilemmas. The course is organized according to the three (3) main elements of the moral experience: (a) agent, including context – cultural, communal, and environmental; (b) the act; and (c) reason or framework (for the act).
GEN ED 9	Life and Works of Rizal	None	As mandated by Republic Act No. 1425 (The Rizal Law), this course examines the life, works, and writings of the Philippines' national hero, Dr. Jose P. Rizal, within the historical context of nineteenth-century Philippine society. It emphasizes the critical study of his novels Noli Me Tangere and El Filibusterismo, selected essays, letters, and other significant writings to deepen learners' understanding of nationalism, patriotism, social justice, and nation-building. The course encourages critical analysis of Rizal's ideals and their continuing relevance to contemporary Philippine society, fostering appreciation of Filipino identity, cultural heritage, democratic values, and responsible citizenship. It is anchored on SDG 4 (Quality Education) by promoting historical literacy and critical thinking and SDG 16 (Peace, Justice, and Strong Institutions) by cultivating ethical leadership, civic responsibility, and commitment to social justice and democratic governance.
GEN ED 10	Human Reproduction	None	This course focuses on biocultural and ecological perspectives on human reproduction. It includes perspective of human ecology, environmental, socioeconomic, and cultural factors that affect human reproduction.

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Professional Education Courses			
Course Code	Course Title	Pre-requisite	Course Description
PROF ED 1	The Teaching Profession	None	This course deals with the understanding of the roles of teacher as a person and as a professional within the context of national and global teachers' standards, educational philosophies and legal bases. It includes knowledge of core values that uphold the dignity of the teaching profession, discussion of the code ethics for professional teachers, and awareness and understanding of existing laws and jurisprudence governing professional rights privileges and responsibilities, and teacher's roles in the society as transformative agents of change.
RPOF ED 2	The Child & Adolescent Learner and Learning Principles	None	Understanding how children and adolescents grow, think, feel, and learn is essential for any future educator. This course provides a comprehensive overview of the physical, cognitive, emotional, and social development of learners from childhood through adolescence. It explores key psychological and educational theories that explain how students acquire knowledge and how individual differences—such as intelligence, personality, and learning styles— affect learning.
PROF ED 3	Facilitating Learner-Centered Teaching: The Learner-Centered Approaches	None	This course is designed to explore and equip pre-service teachers with the fundamental principles, processes, and practices anchored on learner-centeredness and other educational psychologies supportive of learning environments as these apply to facilitate various teaching learning delivery modes to enhance learning. It also includes the demonstration of knowledge and understanding of differentiated teaching to suit the learners' gender, needs, strengths, interests and experiences. Further, pre-service teachers will be trained to implement teaching strategies that are responsive to learners' linguistic, cultural, socio-economic and religious backgrounds.
PROF ED 4	Technology for Teaching and Learning 1	None	This is a 3 – unit introductory course that explores basic knowledge and skills and values in the use of technology for teaching and learning. This course include ICT Policies and safety issues, media and technology in various content areas, learning theories and Principles in the use and design of learning lessons, teaching-learning experiences and assessment tasks that utilize appropriate traditional and innovative technologies with social, ethical and legal responsibility.

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PROF ED 5	The Teacher and the School Curriculum	PROF ED 1	This course includes the fundamental concepts and principles in curriculum and curriculum development as a foundation to engage prospective teachers as curricularists. The more active role of the teacher in planning, implementing and evaluating school- curriculum as well as in managing school curriculum change vis-a -vis various context of teaching -learning and curricular reforms shall be given emphasis.
PROF ED 6	Assessment in Learning 1	None	This is a course that focuses on the principles, development and utilization of conventional assessment tools to improve the teaching-learning process. It emphasizes on the use of assessment of, as, and for, in measuring knowledge, comprehension and other thinking skills in the cognitive, psychomotor or affective domains. It allows students to go through the standard steps in test construction and development and the application in grading systems.
PROF ED 7	Building and Enhancing New Literacies Across the Curriculum with Emphasis on the 21 st Century Skills	PROF ED 5	This course introduces the concepts of new literacies in the 21st century as evolving social phenomena and shared cultural practices across learning areas. The 21st century literacies shall include (a) globalization and multi-cultural literacy, (b) social literacy, (c) media literacy, (d) financial literacy, (e) cyber literacy /digital literacy, (f) eco-literacy and (g) arts and creativity literacy. Field based-interdisciplinary explorations (ex. observation in mathematics, Field Studies) and other teaching strategies shall be used to develop PSTs' teaching skills to promote learners' literacy, and critical and creative thinking skills. Pre-service teachers shall develop skills in using appropriate teaching strategies and resources, including the positive use of ICT, to address learning goals. This course is aligned with United Nations Sustainable Development Goals [SDGs] particularly SDG 4 (Quality Education), SDG 5 (Gender Equality), SDG 8 (Decent Work and Economic Growth), SDG 9 (Industry, Innovation and Infrastructure), SDG 10 (Reduced Inequalities) and SDG 16 (Peace, Justice and Strong Institutions) and SDG 17 (Partnerships). It promotes Filipino cultural identity, gender and culture sensitive pedagogy, ethical professional practice and the use of innovative educational tools and digital platforms through learner -centered, socially responsive and contextualized teaching and assessment.
PROF ED 8	Assessment in Learning 2	PROF ED 6	This is a 3-unit course that focuses on the principles, development and utilization of non-conventional forms of assessment in measuring authentic learning. This course covers the two important aspects of

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			competency assessment: developing authentic assessment tools and conducting assessment processes. The competency in developing authentic assessment tools details the requirements for determining evidence requirements, selecting appropriate assessment methods, preparing assessment tools and validating assessment tools in accordance with relevant Assessment Guidelines. The competency in conducting assessment includes requirements for organizing assessment activities, preparing the candidate, gathering and evaluating evidence, making assessment decisions, recording and providing feedback on assessment outcomes.
PRO FED 9	Foundation of Special and Inclusive Education	PROF ED 2	This course shall deal with philosophies , theories and legal bases of special needs and inclusive education, typical and atypical development of children, learning characteristics of students with special educational needs (gifted and talented, learners with difficulty seeing, learners with difficulty hearing, learners with difficulty communicating , learners with difficulty walking/ moving, learners with difficulty remembering and focusing learners with difficulty with self care) and strategies in teaching and managing these learners in the regular class.
PROF ED 10	The Teacher and the Community, School Culture and Organizational Leadership	PROF ED 1	This course focuses on society as a context upon which the schools have been established. Educational philosophies that are related to the society as a foundation of schools and schooling shall be emphasized. Further, principles and theories on school culture, and organizational leadership shall be included to prepare prospective teachers to become school leaders and managers.
PROF ED 11	Methods of Research (Research 1)	None	The course covers the important concepts of the methods of research including the design, data collection, statistical application and development of research instruments. This also requires the students to prepare a research proposal which includes the introduction, significance of the research, scope and delimitation, literature reviews, and methodology. A proposal that passed a proposal defense is required which will serve as a basis for Technology Research 2.
PROF ED 12	Field Study 1	None	This is the first experiential course, which will immerse a future teacher to actual classroom situation and learning environment where direct observation of teaching learning episodes that focus on the application of educational theories learned in content and pedagogy courses will be made. Observations of learners’ behavior, motivation, teacher’s strategies of teaching, classroom management, assessment in learning among others shall be given emphasis. A portfolio shall be required in the course.



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PROF ED 13	Field Study 2		This course is the continuation of Field Study 1. It is school-based and allows a pre-service teacher to participate and assist in a limited actual teaching-learning activity that relate to assessment of learning, preparation of instructional materials, preparation of the bulletin boards and other routines in the classroom. A portfolio which will contain sample lesson or learning plans and demonstration teaching of at least one subject area will be required. A classroom-based action research proposal should be submitted and concluded during the Teaching Internship.
PROF ED 14	Teaching Internship (Local and or International)	PROF ED 12/ PROF ED 13	This course is a full-semester, full-time teaching internship conducted in basic education schools using a clinical approach under the mentorship of a cooperating teacher. The internship may be completed either on-campus or off-campus, depending on availability and accessibility. No academic courses shall be taken concurrently with the Teaching Internship to ensure full immersion in the teaching practice. Students are required to compile a Teaching Portfolio and complete an Action Research project, demonstrating evidence of reflective practice, professional growth, and effective instructional delivery. The internship aligns with SDG 4 (Quality Education) by strengthening teaching competencies and ensuring inclusive, equitable, and quality learning experiences. It also supports SDG 8 (Decent Work and Economic Growth) by developing employable teaching skills and professional readiness for the education sector.

Major Courses			
Course Code	Course Title	Pre-requisite	Course Description
SES 1	Earth Science	None	This 3-unit course introduces fundamental and historical geology. It examines Earth processes such as rock and mineral formation, soil development, weathering, erosion, mass movement, earthquakes, volcanism, and plate tectonics. It also considers the importance of mineral resources and issues related to their exploration, use, and conservation.
SES 2	Inorganic Chemistry	None	This course covers the basic principles of Inorganic Chemistry such as measurements, matter, atomic structure, chemical formulas and equations, and solution chemistry . It is also a course developing laboratory skills that includes experiments using available materials and exercises illustrating the concepts covered in Inorganic Chemistry.
SES 3	Anatomy and Physiology	None	This course deals with the study of the fundamental structures of the human body and their corresponding

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			functions. It emphasizes the integration of the organ systems in relation to normal health and provides information on associated disorders. It also includes experiments involving the organ systems of the human body which are designed to develop skills in the macroscopic and microscopic examinations of the tissues and organs of the human body.
SES 4	Fluid Mechanics	None	The course deals with the science of fluids (liquids and gases). It discusses aerodynamics – the study of air and gases in motion; and hydrodynamics – the study of liquids in motion. It also discusses principles relating speed, pressure and forces particularly Bernoulli and Pascal’s principles. It allows the students to gain knowledge of how this topic is applied to daily activities and solve practical problems.
SES 5	Environmental Science	None	This course introduces the fundamental concepts, principles, and processes of environmental science, focusing on the interactions among living organisms, the physical environment, and human societies. It examines ecosystems, biodiversity, natural resources, population dynamics, energy and material cycles, environmental pollution, waste management, climate change, environmental degradation, and sustainable development.
SES 6	Electricity and Magnetism	None	This course is designed to discuss knowledge of the basic relationship between electricity and magnetism. It includes topics on electrostatics and magnetism, electric and magnetic fields in matter, electrodynamics and electromagnetic waves. It provides the students the mathematical relationship between current, voltage and resistance in an electric circuit. Students must gain skills in solving problems needing high mathematical analysis apart from the principles comprising this area of physics. Upon knowing the relationship between electricity and magnetism, students must be able to apply the concepts and principles to real life situations for life-long learning.
SES 7	Organic Chemistry	None	This course deals with the fundamentals of Organic Chemistry, specifically organic compounds, their properties, uses, structure, simple reactions and some of its functional groups. A laboratory period is also a part of this course that will serve as an avenue for the application of the theories learned, the observation of structural effects on the physical and chemical properties of organic compounds and the preparation of useful products making use of organic compounds.
SES 8	Astronomy	None	The course deals with the study of composition and structure of the universe. This course will provide the students with a

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			study of the universe and the conditions, properties, and motions of bodies in space. The content includes historical astronomy, astronomical instruments, the celestial sphere, the solar system, the earth as a system in space, the earth/moon system, the sun as a star, and stars. The emphasis on evolution and characteristics of the major planets, moons and other objects in the solar system.
SES 9	Genetics	SES 3	This course deals with the principles of heredity and variation; its application in plant and animal breeding, and problems involved in it. It also includes biometrical treatment of qualitative and quantitative characters of both plants and animals. It also comprises exercises on chromosomal basis of inheritance, structure of genetic material and Mendelian and non-Mendelian inheritance.
SES 10	Waves and Optics	SES 6	The course discusses the fundamental concepts of mechanical and electromagnetic waves. It describes the production and propagation of waves, its characteristics, types, and properties. It also deals with simple harmonic motion. This course also gives emphasis on the nature and duality of light with emphasis on physical and geometric optics. Learning waves and optics allows the students to gain insights on importance of waves on daily activities and applied the concepts and principles in problem solving.
SES 11	Biochemistry	SES 7	This course provides information on the fundamental aspects of biochemistry and the structure and dynamics of important cellular components. The properties and metabolism of carbohydrates, proteins, lipids and other biochemical compounds. This is complemented by a laboratory period to perform qualitative test for some compound and preparation of some commercial products like soap, perfume and other products.
SES12	Microbiology and Parasitology	SES 3, SES 11	This course deals with the study of bacteria, viruses, fungi, algae, protozoan, and helminths, their general characteristics, pathogenicity, source and mode of transmission. This course also covers the principles that underlie infection, disease control and prevention, as well as immunity. The impact of microorganisms on human health and environment, as well as the applications in industry are also given emphasis. The laboratory component of the course gives emphasis on activities that demonstrates major concepts of microbiology and parasitology. This coursed designed and developed laboratory skills, including microscopy, aseptic technique, staining methods, culture methods, and identification of microorganisms.

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SES 13	Meteorology	None	This course provides an introduction to the fundamental principles and concepts of meteorology, with emphasis on the processes and phenomena that occur in the Earth's atmosphere. It examines the composition and structure of the atmosphere, solar radiation, heating of the Earth's surface, temperature, atmospheric pressure, humidity, clouds, precipitation, air masses, fronts, and atmospheric circulation. The course also explores weather systems, tropical cyclones, thunderstorms, monsoons, climate-related phenomena, and the effects of human activities on the atmosphere.
SES 14	The Teaching of Science	None	This course deals with the principles, goals, materials, content, assessment, management and methods of teaching science at the secondary level and provides opportunities for demonstration teaching.
SES 15	Thermodynamics	None	The course includes temperature and heat, thermal properties of matter, laws of thermodynamics, entropy and heat engines.
SES 16	Cell and Molecular Biology	SES 12 & SES 9	This course deals with the study of the structure and function of cellular organelles and inclusions including the relationship between cell and structure and biochemical reactions. It also includes basic discussions on the central dogma of molecular biology and updates on DNA technology. This course also deals with the enhancement of skills for the use of laboratory equipment in the study of structure and function of organelles. It also includes investigations of cellular processes through chromatography, centrifugation, spectrophotometry, and electrophoresis.
SES 17	Modern Physics	SES 6	The course covers topics including relativity, photoelectric effect, Bohr Model, wave-particle duality of light, and quantum mechanics.
SES 18	Analytical Chemistry	SES 2	This course involves a study of the principles and theories important to the practice of analytical chemistry. It involves discussion of the techniques, methods and instrumentation used by chemists in doing analysis; solutions, acids, bases and salts were included for mastery of the students, for it is included in senior high school. Particular attention is given to problem solving about concentration of solutions, pH, pOH, redox reactions, gravimetric analysis, and volumetric analysis. This course is also accompanied with online activities and links of additional readings and videos to enhance their understanding of related topics.



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SES 19	Technology for Teaching and Learning 2	PROF ED 4 & PROF ED 8	This is a 3-unit course that focuses on the application, design, production, utilization, and evaluation of Information and Communications Technology (ICT) materials for teaching and learning in Secondary Science Education and other related programs aligned with the K to 12 curriculum.
SES 20	Research in Teaching Science	PROF ED 11	The course is a continuation of Methods of Research 1 where the students are expected to complete the research proposal aligned to the areas of specialization. The course aims to prepare pre-service teachers to undertake an undergraduate research project. It entails exposure to various theories and trends in education and research culled from actual action research projects. It gives students the opportunity to conduct researches that address problem issues, and concerns in teaching and learning showcasing research skills, knowledge of research ethical standards, as well as specialized contents and processes. This includes the presentation, tabulation, analysis and interpretation of the data collected. An oral presentation of the output of research called thesis defense is required among students.



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CURRICULUM STRUCTURE

First Year, 1st Semester

Course Code	Course Title	Number of Hours		Credit Hours	Number of Units		Credit Units	Pre-requisite
		Lec	Lab		Lec	Lab		
FIL 1	Kontekstwalisadong Komunikasyon sa Filipino (KOMFIL)	3	0	3	3	0	3	None
NSTP 1	National Service Training Program 1	3	0	3	(3)	0	(3)	None
PATHFit 1	Physical Activities Toward Health and Fitness 1: Movement Competency Training (MCT)	2	0	2	2	0	2	None
GEN ED 1	Understanding the Self	3	0	3	3	0	3	None
GEN ED 2	Readings in Philippine History	3	0	3	3	0	3	None
GEN ED 4	Math in the Modern World	3	0	3	3	0	3	None
GEN ED 5	Purposive Communication	3	0	3	3	0	3	None
PROF ED 1	The Teaching Profession	3	0	3	3	0	3	None
PROF ED 2	The Child and Adolescent Learner and Learning Principles	3	0	3	3	0	3	None
Total		26	0	26	23	0	23	

First Year, 2nd Semester

Course Code	Course Title	Number of Hours		Credit Hours	Number of Units		Credit Units	Pre-requisite
		Lec	Lab		Lec	Lab		
FIL 2	Filipino sa Iba't Ibang Disiplina (FILDIS)	3	0	3	3	0	3	FIL 1
NSTP 2	National Service Training Program 2	3	0	3	(3)	0	(3)	NSTP 1
PATHFit 2	Physical Activities Toward Health and Fitness 2: Exercise-based Fitness Activities	2	0	2	2	0	2	PATHFit 1
PROF ED 3	Facilitating Learner - Centered Teaching: The Learner Centered Approaches	3	0	3	3	0	3	None
SES 1	Earth Science	3	0	3	3	0	3	None
SES 2	Inorganic Chemistry	4	3	7	4	1	5	None
SES 3	Anatomy and Physiology	3	3	6	3	1	4	None
SES 4	Fluid Mechanics	3	0	3	3	0	3	None
Total		24	6	30	21	2	23	

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Second Year, 1st Semester

Course Code	Course Title	Number of Hours		Credit Hours	Number of Units		Credit Units	Pre-requisite
		Lec	Lab		Lec	Lab		
PATHFit 3	Physical Activities Toward Health and Fitness 3: Menu of Dance, Sports, Martial Arts, Group Exercise, Outdoor and Adventure Activities	2	0	2	2	0	2	PATHFit 2
GEN ED 10	Human Reproduction	3	0	3	3	0	3	None
PROF ED 4	Technology for Teaching and Learning 1**	3	0	3	3	0	3	None
PROF ED 5	The Teacher and the School Curriculum	3	0	3	3	0	3	None
PROF ED 6	Assessment in Learning 1	3	0	3	3	0	3	PROF ED 1
SES 5	Environmental Science	3	0	3	3	0	3	None
SES 6	Electricity and Magnetism	3	3	6	3	1	4	None
SES 7	Organic Chemistry	4	3	7	4	1	5	None
Total		24	6	30	24	2	26	

Second Year, 2nd Semester

Course Code	Course Title	Number of Hours		Credit Hours	Number of Units		Credit Units	Pre-requisite
		Lec	Lab		Lec	Lab		
PATHFit 4	Physical Activities Toward Health and Fitness 4: Menu of Dance, Sports, Martial Arts, Group Exercise, Outdoor and Adventure Activities	2	0	2	2	0	2	PATHFit 3
PROF ED 7	Building and Enhancing New Literacies Across the Curriculum with Emphasis on the 21st Century Skills	3	0	3	3	0	3	PROF ED 5
PROF ED 8	Assessment in Learning 2	3	0	3	3	0	3	PROF ED 6
PROF ED 9	Foundation of Special and Inclusive Education	3	0	3	3	0	3	PROF ED 2
SES 8	Astronomy	3	0	3	3	0	3	None
SES 9	Genetics	3	3	6	3	1	4	SES 3
SES 10	Waves and Optics	3	3	6	3	1	4	SES 6
SES 11	Biochemistry	3	3	6	3	1	4	SES 7
Total		23	6	32	23	3	25	



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Third Year, 1st Semester

Course Code	Course Title	Number of Hours		Credit Hours	Number of Units		Credit Units	Pre-requisite
		Lec	Lab		Lec	Lab		
PROF ED 10	The Teacher and the Community, School Culture and Organizational Leadership	3	0	3	3	0	3	PROF ED 1
PROF ED 11	Methods of Research (Research I)	3	0	3	3	0	3	PROF ED 6
SES 12	Microbiology and Parasitology	3	3	6	3	1	4	SES 3 SES 11
SES 13	Meteorology	3	0	3	3	0	3	None
SES 14	The Teaching of Science	3	0	3	3	0	3	None
SES 15	Thermodynamics	3	3	6	3	1	4	None
SES 16	Cell and Molecular Biology	3	3	6	3	1	4	SES 11 Biochemistry SES 9 (Genetics)
Total		21	9	30	21	3	24	

Third Year, 2nd Semester

Course Code	Course Title	Number of Hours		Credit Hours	Number of Units		Credit Units	Pre-requisite
		Lec	Lab		Lec	Lab		
SES 17	Modern Physics	3	0	3	3	0	3	None
SES 18	Analytical chemistry	4	3	7	4	1	5	SES 6
SES 19	Technology for Teaching and Learning 2	3	0	3	3	0	3	SES 2
SES 20	Research in Teaching Science	3	0	3	3	0	3	PROF ED 4 PROF ED 8
ELP	English for Teachers	3	0	3	3	0	3	PROF ED 11
Total		16	3	19	16	1	17	

Fourth Year, 1st Semester

Course Code	Course Title	Number of Hours		Credit Hours	Number of Units		Credit Units	Pre-requisite
		Lec	Lab		Lec	Lab		
GEN ED 3	The Contemporary World	3	0	3	3	0	3	None
GEN ED 6	Art Appreciation	3	0	3	3	0	3	None
GEN ED 7	Science, Technology and Society	3	0	3	3	0	3	None
GEN ED 8	Ethics	3	0	3	3	0	3	None
GEN ED 9	Life and Works of Rizal	3	0	3	3	0	3	None



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Course Code	Course Title	Number of Hours		Credit Hours	Number of Units		Credit Units	Pre-requisite
		Lec	Lab		Lec	Lab		
PROF ED 12	Field Study 1	0	3	3	0	3	3	All PROF. EDUC. and MAJOR SUBJECTS
PROF ED 13	Field Study 2	0	3	3	0	3	3	
Total		15	0	21	15	6	21	

Fourth Year, 2nd Semester

Course Code	Course Title	Number of Hours		Credit Hours	Number of Units		Credit Units	
		Lec	Lab		Lec	Lab		
PROF ED 14	Teaching Internship (Local and or International)	0	40	40	0	6	6	PROF ED 12/PROF ED13
CA	Course Audit	6	0	6	(3)	0	(3)	
Total		6	40	46	0	6	6	

Curriculum Summary

CURRICULUM SUMMARY		
Curriculum Content	NEUST	CHED
General Education Subjects	36	36
Professional Education Subjects	42	42
Specialization Courses with Cognates	73	73
Mandated Subjects (PATHFit/NSTP)	14	14
Curricular Innovations:		
ELP	3	
Course Audit 1	(3)	
Total	168	165



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