

COLLEGE OF ENGINEERING

COURSE CATALOG

BACHELOR OF SCIENCE IN CIVIL ENGINEERING

- GEC 1 UNDERSTANDING THE SELF**
Nature of identity; factors and forces that affect the development and maintenance of personal identity.
Credit : 3 units
No. of hrs/wk : 3
Prerequisite : None
- GEC 2 READINGS IN PHILIPPINE HISTORY**
Philippine History viewed from the lens of selected primary sources in different periods with local history added, analysis and interpretation.
Credit : 3 units
No. of hrs/wk : 3
Prerequisite : None
- GEC 3 THE CONTEMPORARY WORLD**
Globalization and its impact on individuals, communities and nations: challenges and responses.
Credit : 3 units
No. of hrs/wk : 3
Prerequisite : None
- GEC 4 MATHEMATICS IN THE MODERN WORLD**
Nature of mathematics, appreciation of its practical, intellectual, and aesthetic dimensions, and application of mathematical tools in daily life.
Credit : 3 units
No. of hrs/wk : 3
Prerequisite : None
- GEC 5 PURPOSIVE COMMUNICATION**
Writing, speaking and presenting to different audiences and for various purposes.
Credit : 3 units
No. of hrs/wk : 3
Prerequisite : None

- GEC 6 ART APPRECIATION**
Nature, function and appreciation of the arts in contemporary society.
Credit : 3 units
No. of hrs/wk : 3
Prerequisite : None
- GEC 7 SCIENCE, TECHNOLOGY AND SOCIETY**
Interactions between science and technology and social, cultural, political and economic contexts which shape and are shaped by them; specific examples throughout human history of scientific and technological developments.
Credit : 3 units
No. of hrs/wk : 3
Prerequisite : None
- GEC 8 ETHICS**
Principles of ethical behavior in modern society at the level of the person, society, and in interaction with the environment and other shared resources.
Credit : 3 units
No. of hrs/wk : 3
Prerequisite : None
- GEC 9 LIFE AND WORKS OF RIZAL**
The study of the life of Rizal and his literary works.
Credit : 3 units
No. of hrs/wk : 3
Prerequisite : None
- GEC 10 HISTORY OF THE MUSLIM FILIPINOS AND THE IPs OF MINDANAO**
The course deals with the historical overview of the Muslim Filipinos and the indigenous peoples of Mindanao. The Sulu Archipelago and Palawan since the pre-colonial times with focus on how these people fought against the forces of foreign and local domination.
Credit : 3 units
No. of hrs/wk : 3
Prerequisite : None

- GEC 11** **LANGUAGE, GENDER AND SOCIETY/WIKA, GENDER AT LIPUNAN**
Explore the meaning of gender in contemporary society and the relations of language to gender and society and the linguistic use and behavior among women, men and the third sex (LGBT) from a cross-cultural perspective.
Credit : 3 units
No. of hrs/wk : 3
Prerequisite : None
- GEC 12** **ECOCRITICISM AND THE CONSERVATION OF NATURE/ EKOKRITISISMO AT PANGANGALAGA NG KALIKASAN**
Contemporary issues in language and literature that deals with preservation and respect for nature in different times and places in the country and measures for environmental protection and preservation of the ecology.
Credit : 3 units
No. of hrs/wk : 3
Prerequisite : None
- PE 1** **PATH-FIT 1 (Physical Activities Toward Health & Fitness 1): MOVEMENT COMPETENCY TRAINING**
The course reintroduces the fundamental movement patterns that consist of non-locomotor and locomotor skills, which are integrated with core training (stability, strength and power) to meet the demands of activities of daily living and sports performance. The training shall be in conjunction with fitness concepts, exercise and healthy eating principles. Emphasis will be on exercise progression and regression for the enhancement of fitness; adaptation of movement competencies to independent physical activity pursuits and the periodic evaluation of PA and eating patterns to monitor one's progress and achievement of personal fitness and dietary goals.
Credit : 2 units
No. of hrs/wk : 3 Prerequisite : None
- PE 2** **PATH-FIT 2 (Physical Activities Toward Health & Fitness 2): FITNESS TRAINING**
The course builds on the Movement Competency Training course which focused on the fundamental movement patterns and core training. Based on the primary movements (squat, hinge, lunge, vertical push and pull, horizontal push and pull), fitness training starts with body weight training to improve balance, coordination, endurance and flexibility, the progresses to training for core strength and power, with or without resistance training equipment. Emphasis is on exercise progression and regression for the enhancement of skill-related fitness components in

preparation for and/or in conjunction with vigorous physical activities, such as sports participation.

Credit : 2 units

No. of hrs/wk : 3

Prerequisite : PE 1

PE 3

PATH-FIT 3 (Physical Activities Toward Health & Fitness 3): MENU OF DANCE, SPORTS, MARTIAL ARTS, GROUP EXERCISE, OUTDOOR & ADVENTURE ACTIVITIES

This course tackles the fundamental skills of the dance/sport/martial arts/group exercise/outdoor and adventure activity that include (specify here activity-specific skills: for example – table tennis-ball control (grip, stance and footwork), strokes (forehand and backhand push), the serve and return of serve). It also engages the learner in game play with some basic strategies or tactics (applicable only to sports). Through skills training in class, pursuit of recreation (or independent physical activities) beyond the classes and in conjunction with fitness and healthy eating concepts, fitness levels are enhanced. PA and eating habits are also periodically evaluated to monitor one's progress and achievement of personal fitness and dietary goals.

Credit : 2 units

No. of hrs/wk : 3

Prerequisite : PE 2

PE 4

PATH-FIT 4 (Physical Activities Toward Health and Fitness 4): MENU OF DANCE, SPORTS, GROUP EXERCISE, OUTDOOR & ADVENTURE ACTIVITIES

The course tackles the fundamental skills of the dance/sports/martial arts/group exercise/outdoor and adventure activity that include (specify here activity specific skills: for example – table tennis-ball control (grip, stance and footwork), strokes (forehead and backhand drive, forehand and backhand push), the serve and return of serve. It also engages the learner in game play with some basic strategies or tactics (applicable only to sports). Through skills training in class, pursuit of recreation (or independent physical activities) beyond the classes and in conjunction with fitness and healthy eating concepts, fitness levels are enhanced. PA and eating habits are also periodically evaluated to monitor one's progress and achievement of personal fitness and dietary goals.

Credit : 2 units

No. of hrs/wk : 3

Prerequisite : PE 3

NSTP 1**NATIONAL SERVICE TRAINING PROGRAM 1: CIVIC WELFARE TRAINING SERVICE 1**

The National Service Training Program (NSTP) aimed in enhancing civic consciousness and defense preparedness in the youth, by developing the ethics of service and patriotism while undergoing training in any of the three (3) program components (CWTS, LTS, ROTC), specially designed to enhance the youth's active contribution to the general welfare.

The **Civic Welfare Training Service (CWTS)** is a program component of NSTP contributory to the general welfare and the betterment of life for the members of the community and the enhancement of its facilities, especially those devoted to improving health, education, environment, entrepreneurship, safety, recreation and moral of the citizenry and other social welfare services.

Credit : 3 units
No. of hrs/wk : 3
Prerequisite : None

NSTP 2**NATIONAL SERVICE TRAINING PROGRAM 2: CIVIC WELFARE TRAINING SERVICE 2**

This is a 3-unit course designed to train students on civic consciousness and defense preparedness. This requires the students to develop the ethics of community service and patriotism as well as possess a sense of volunteerism. This course will have the need for the student to be well-informed on the following topics: Citizenship Training, Environmental Protection, Disaster Preparedness, Drugs Addiction and National Security.

Credit : 3 units
No. of hrs/wk : 3
Prerequisite : NSTP 2 (CWTS 2)

BES 9**MANAGEMENT OF ENGINEERING PROJECT**

Course Description: The course covers the principles of management, theory, and practice, various approaches to decision making, managing production and services operations; and project management. Emphasis is also given to the managerial functions of planning, organizing, staffing, leading, and controlling.

Credits Units: 3
Pre-Requisite: None (3rd Year standing)
Co-Requisite: None

FCE 17.1**CE PROJECT 1 LAB**

Course Description: Development of a capstone project proposal containing a clear set of objectives ,methodology , project implementation plan/ schedule and resource requirements.

Credits Units: 1

Pre-Requisite: 4th Year standing

Co-Requisite: FCE 17

FCE 17**CE PROJECT 1 LEC**

Course Description: Development of a capstone project proposal containing a clear set of objectives ,methodology , project implementation plan/ schedule and resource requirements.

Credits Units: 1

Pre-Requisite: 4th Year standing

Co-Requisite: FCE 17.1

FCE 18.1**CE PROJECT 2 LAB**

Course Description: Implementation of a capstone project based on an approved proposal.

Credits Units: 1

Pre-Requisite: FCE 17 & FCE 17.1

Co-Requisite: FCE 18

FCE 18**CE PROJECT 2 LEC**

Course Description: Implementation of a capstone project based on an approved proposal.

Credits Units: 1

Pre-Requisite: FCE 17, FCE 17.1

Co-Requisite: FCE 18.1

CHEM 1**CHEMISTRY FOR ENGINEERS LECTURE**

Course Description: This course provides students with core concepts of chemistry that are important in the practice of the engineering profession. Topics include Energy, The Chemistry of Engineering Materials, Basic Concepts of Crystal Structure, Thermodynamics, The Chemistry of the Atmosphere, The Chemistry of Waters, Soil Chemistry, and Chemical Safety.

Credits Units: 3

Pre-Requisite: None

Co-Requisite: Chemistry For Engineers Laboratory

CHEM 1.1**CHEMISTRY FOR ENGINEERS LABORATORY**

Course Description: A fundamental laboratory course designed to relate and apply the principles and theories in chemistry to engineering practices. It is a combination of experimental and calculation laboratory.

Credits Units: 1

Pre-Requisite: None

Co-Requisite: Chemistry For Engineers Lecture

FCE 3.1**FUNDAMENTAL OF SURVEYING LAB**

Course Description: This course deals with: Proper handling of surveying instrument will be taken.; perform measurement of distance and distance corrections, perform calculations related to area computations, latitude and departure computations, DMD and DPD methods of land area determination, balancing the traverse, elev determ. & leveling. Perform stadia & topographic surveying, triangulation, trilateralization, missing data computation, and subdivision of lots. Laying out of horizontal curves, compound curve, reversed curve, spiral curve and mass diagram.

Credits Units: 2

Pre-Requisite: BES 1.1

Co-Requisite: FCE 3

FCE 3**FUNDAMENTAL OF SURVEYING LEC**

Course Description: This course deals with: Measurement of distance and distance corrections, the use of surveying instruments, area computations, balancing the traverse, elevation determination, and leveling .Stadia surveying ,topographic surveying ,triangulation and trilateration, missing data, irregular boundaries and global positioning system.

Credits Units: 5

Pre-Requisite: BES 1.1

Co-Requisite: FCE 3.1

FCE 4**GEOLOGY FOR CIVIL ENGINEERS**

Course Description: Fundamentals of geology applied to civil engineering problems. Topics include rock and mineral types, soil properties, rock mechanics, geologic structures, active tectonics and earthquake hazards, slope stability and landslides, groundwater, rivers and flood hazards. Team projects include engineering geology case studies and site assessment investigations.

Credits Units: 2

Pre-Requisite: Chemistry for Engineers Lec
Chemistry for Engineers Lab

Co-Requisite: None

FCE 12.1**HYDRAULICS LAB**

Course Description: The course emphasizes the continuity equation, energy equation, and momentum equation. Familiarization of the properties of common liquids in the study of hydraulics. Application of fundamental principles to solve problems involving liquid pressure and corresponding forces resulting from this pressure. Applications of appropriate equations in performing calculations involving flow velocity, flow rate and forces exerted by moving liquids in closed conduits and open channels. Familiarization and applications of flow measuring devices such as orifice, weirs, pitot tube.

Credits Units: 1

Pre-Requisite: Dynamics of Rigid Bodies,
Mechanics of Deformable Bodies

Co-Requisite: Hydraulics Lec

FCE 12**HYDRAULICS LECTURE**

Course Description: The course emphasizes the continuity equation, energy equation, and momentum equation. Familiarization of the properties of common liquids in the study of hydraulics. Application of fundamental principles to solve problems involving liquid pressure and corresponding forces resulting from this pressure. Applications of appropriate equations in performing calculations involving flow velocity, flow rate and forces exerted by moving liquids in closed conduits and open channels. Familiarization and applications of flow measuring devices such as orifice, weirs, pitot tube.

Credits Units: 5

Pre-Requisite: Dynamics of Rigid Bodies,
Mechanics of Deformable Bodies

Co-Requisite: Hydraulics Lab

FCE 13**HYDROLOGY**

Course Description: This course deals with: Hydrologic cycle and the different processes such as precipitation, evaporation, infiltration, overland flow, groundwater flow and surface run off generation.

Credits Units: 3

Pre-Requisite: 3rd Year standing

Co-Requisite:

FCE 30**ON-THE-JOB TRAINING**

Course Description: Actual On-the-Job Training or Industry Internship in the field of specialization.

Credits Units: 3

Pre-Requisite: 4th Year standing

Co-Requisite:

PHYS 1.1**PHYSICS FOR ENGINEERS LAB**

Course Description: The course emphasizes the application of kinematics, Newton's Laws of Motion, Work and Energy, Momentum and impulse, mechanical waves, the doppler effect, thermal coefficient of linear expansion, mechanical equivalent of heat, latent heat of fusion, electrostatics, measurement of resistance, coulomb's law, and resistors in series and parallel.

Credits Units: 1

Pre-Requisite: Calculus 1

Co-Requisite: Physics for Engineers Lecture

PHYS 1**PHYSICS FOR ENGINEERS LECTURE**

Course Description: Vectors; kinematics; dynamics; work, energy and power; impulse and momentum; rotation; dynamics of rotation; elasticity and oscillation; fluids; thermal expansion; thermal stress; heat transfer and calorimetry; waves; electrostatics; electricity and magnetism; optics.

Credits Units: 3 units lecture

Pre-Requisite: Calculus 1

Co-Requisite: Calculus 2; Physics for Engineers Laboratory