National Curriculum of Pakistan
2022-23

TECHNICAL EDUCATION

APPLIED SCIENCES-II

Patient Safety (Theory)
Grade 12

NATIONAL CURRICULUM COUNCIL SECRETARIAT
MINISTRY OF FEDERAL EDUCATION AND
PROFESSIONAL TRAINING, ISLAMABAD
GOVERNMENT OF PAKISTAN

بسم الله الرحمن الرحيم

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It is with great pride that we, at the National Curriculum Council Secretariat, present the first core curriculum in Pakistan's 75-year history. Consistent with the right to education guaranteed by Article 25-A of our Constitution, the National Curriculum of Pakistan (2022-23) aspires to equip every child with the necessary tools required to thrive in and adapt to an ever-evolving globalized world.

The National Curriculum is in line with international benchmarks, yet sensitive to the economic, religious, and social needs of young scholars across Pakistan. As such, the National Curriculum aims to shift classroom instruction from rote learning to concept-based learning.

Concept-based learning permeates all aspects of the National Curriculum, aligning textbooks, teaching, classroom practice, and assessments to ensure compliance with contemplated student learning outcomes. Drawing on a rich tapestry of critical thinking exercises, students will acquire the confidence to embark on a journey of lifelong learning. They will further be able to acknowledge their weaknesses and develop an eagerness to build upon their strengths.

The National Curriculum was developed through a nationwide consultative process involving a wide range of stakeholders, including curriculum experts from the public, private, and non-governmental sectors. Representatives from provincial education departments, textbook boards, assessment departments, teacher training departments, *deeni madaris*, public and private publishers, private schools, and private school associations all contributed their expertise to ensure that the National Curriculum could meet the needs of all Pakistani students.

The experiences and collective wisdom of these diverse stakeholders enrich the National Curriculum, fostering the core, nation-building values of inclusion, harmony, and peace, making the National Curriculum truly representative of our nation's educational aspirations and diversity.

I take this opportunity to thank all stakeholders, including students, teachers, and parents who contributed to developing the National Curriculum of Pakistan (2022-23)

Dr. Mariam Chughtai
Director
National Curriculum Council Secretariat
Ministry of Federal Education and Professional Training

Applied Sciences II for Grade 12
Progression Grid (PG)

PATIENT SAFETY (Theory)

Domain A: Electrical hazards

Standard: The content of Electrical hazards empowers students to acquire and apply fundamental scientific knowledge and skills related to electrical systems, circuits, and safety protocols.

Grade 12
Benchmark I: Student will be able to • Explain the potential dangers and consequences of electric shock • Describe the function and operation of defibrillators in medical settings • Classify medical equipment based on its electrical properties and safety requirements
[SLO:APII-12-A-01]: Identify the physiological effects of electrical current on body muscles. [SLO:APII-12-A-02]: Explain the potential dangers and consequences of electric shock on the human body. [SLO:APII-12-A-03]: Describe the function and operation of defibrillators in medical settings. [SLO:APII-12-A-04]: Explain the role of electrical devices and pacemakers, assessing potential risks and safety measures. [SLO:APII-12-A-05]: Compare the uses and safety considerations of high and low frequency electricity in medical applications. [SLO:APII-12-A-06]: Classify medical equipment based on its electrical properties and safety requirements. [SLO:APII-12-A-07]: Explain the degree of protection in medical equipment and its significance in preventing electrical hazards. [SLO:APII-12-A-08]: Explain the concept of earth leakage current and its implications for electrical safety in medical environments. [SLO:APII-12-A-09]: Develop strategies for mitigating electrical hazards in medical settings, considering equipment design, installation, and maintenance protocols.

Domain B: Fire and explosion in hospitals

Standard The course of Fire and explosion in hospitals enables students to learn and apply scientific knowledge and skills related to fire prevention, emergency response, and safety protocols.

Grade 12
Benchmark I: *Student will be able to* • Explain the mechanism by which electricity can contribute to fire and explosion hazards in hospitals • Explain precautionary measures to prevent fire and explosion incidents in hospital settings. • Describe proper handling procedures for inflammable gases and liquids to minimize fire risks.
[SLO:APII-12-B-01]:

Identify inflammable gases and liquids commonly found in hospital environments.
[SLO:APII-12-B-02]:
Explain the mechanism by which electricity can contribute to fire and explosion hazards in hospitals.
[SLO:APII-12-B-03]:
Explain precautionary measures to prevent fire and explosion incidents in hospital settings.
[SLO:APII-12-B-04]:
Describe proper handling procedures for inflammable gases and liquids to minimize fire risks.

Domain C: Surgical diathermy

Standard: The content of surgical diathermy enables students to learn and apply scientific knowledge and skills related to electro surgery techniques.

Grade 12
Benchmark I: Student will be able to • Describe the function and operation of surgical diathermy • Describe the common mechanical hazards present in hospital environments • Define chemical burn and differentiate it from other types of burns
[SLO:APII-12-C-01]: Describe the function and operation of surgical diathermy equipment used in hospitals. [SLO:APII-12-C-02]: Explain the precautions necessary when using surgical diathermy. [SLO:APII-12-C-03]: Describe the common mechanical hazards present in hospital environments. [SLO:APII-12-C-04]: Define heat and light hazards in occupational and environmental context. [SLO:APII-12-C-05]: Identify common sources of heat and light hazards in various workplace setting. [SLO:APII-12-C-06]: Describe the physical properties of heat and light hazards. [SLO:APII-12-C-07]: Define chemical burn and differentiate it from other types of burns. [SLO:APII-12-C-08]: Identify common chemicals that can cause chemical burns in hospital settings. [SLO:APII-12-C-09]: Describe the signs and symptoms of chemical burns [SLO:APII-12-C-10]: List appropriate first aid measures for chemical burns.

Domain D: Radiation

Standard: The study of Radiation students in acquiring and applying scientific knowledge and skills pertaining to radiation.

Grade 12
Benchmark I: Student will be able to • Explain the sources, properties, and biological effects of Non-ionizing and ionizing radiation

- Describe the potential hazards associated with microwave ovens
- Define lasers and describe their properties.
- Describe the potential health risks associated with exposure to non-ionizing radiation

[SLO:APII-12-D-01]:
Explain the sources, properties, and biological effects of Non-ionizing and ionizing radiation.
[SLO:APII-12-D-02]:
Explain safety guidelines and precautions for minimizing exposure to ionizing and non-ionizing radiation.
[SLO:APII-12-D-03]:
Describe the potential health risks associated with exposure to ionizing and non-ionizing radiation.
[SLO:APII-12-D-04]:
Explain the principles of operation and safety considerations associated with microwave ovens.
[SLO:APII-12-D-05]:
Describe the potential hazards associated with microwave ovens.
[SLO:APII-12-D-06]:
Describe the therapeutic applications of ultrasound equipment in healthcare settings.
[SLO:APII-12-D-07]:
Define lasers and describe their properties.
[SLO:APII-12-D-08]:
Identify the different types of lasers used in various applications.
[SLO:APII-12-D-09]:
Explain the principles of laser operation.

Domain E: Infection in hospitals

Standard: The content of infection in hospitals enables students to learn and apply scientific knowledge and skills related to infection control measures in healthcare settings.

Grade 12

Benchmark I: Student will be able to

- Explain pathogenic and non-pathogenic microorganisms and their roles in causing infections.
- Classify different kinds of infections commonly encountered in hospitals.
- Classify different kinds of infections commonly encountered in hospitals.

[SLO:APII-12-E-01]:
Identify the components of the hospital environment that can contribute to the spread of infections.
[SLO:APII-12-E-02]:
Explain pathogenic and non-pathogenic microorganisms and their roles in causing infections.
[SLO:APII-12-E-03]:
Describe the various modes of spread of infections in healthcare settings.
[SLO:APII-12-E-04]:
Classify different kinds of infections commonly encountered in hospitals.
[SLO:APII-12-E-05]:
Explain the concept of cross-infection and its implications for patient safety.
[SLO:APII-12-E-06]:
Explain the process of infection prevention and control in hospitals (standard precautions, transmission-based precautions, and environmental controls).

First Aid (Theory)

Domain A: First Aid

Standard: The course/subject of first aid the student will enable to learn and apply the scientific knowledge and skills related to first aid in healthcare and relevant settings.

Grade 12
Benchmark I: Student will be able to demonstrate the ability to assess an emergency situation and provide appropriate first aid, apply the principles of ABC (Airway, Breathing, Circulation) in emergency situations. Explain the principles of first aid, emphasizing the importance of quick and appropriate response.

The student will be able to

[SLO:APII-12-A-01]:

- Define First Aid and its significance in providing immediate assistance and care.

[SLO:APII-12-A-02]:

- Explain the importance of First Aid in preventing further injury

[SLO:APII-12-A-03]:

- Explain the principles of first aid

[SLO:APII-12-A-04]:

- Demonstrate the principles of ABC (Airway, Breathing, and Circulation) in emergency situations.

[SLO:APII-12-A-05]:

- Demonstrate the ability to assess an emergency situation and provide appropriate first aid.

[SLO:APII-12-A-06]:

- Explain the proper technique for dressing wounds and applying different types of bandages.

[SLO:APII-12-A-07]:

- Describe the structure and function of the respiratory system.

[SLO:APII-12-A-08]:

- Define asphyxia and identify common causes.

[SLO:APII-12-A-09]:

- Explain the structure and function of the cardiovascular system.

[SLO:APII-12-A-10]:

- Describe the pathophysiology of shock.

[SLO:APII-12-A-11]:

- Demonstrate appropriate first aid measures for cardiogenic shock.

[SLO:APII-12-A-12]:

- Explain the causes and treatment of hypovolemic shock.

[SLO:APII-12-A-13]:

- Identify the common causes of abdominal pain that may require immediate first aid intervention.

[SLO:APII-12-A-14]:

- Demonstrate the appropriate steps to assess and manage a person experiencing abdominal pain.

[SLO:APII-12-A-15]:

- Demonstrate the appropriate steps of the Heimlich maneuver (abdominal thrusts) for relieving choking in conscious adults, children, infants and obese individuals.

[SLO:APII-12-A-16]:

- Demonstrate the proper handling and storage procedures of potentially dangerous kitchen tools.

[SLO:APII-12-A-17]:

- Identify common hazards present in the bathroom environment.

[SLO:APII-12-A-18]:

- Describe strategies for preventing bathroom-related accidents.

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