

مولانا آزاد نیشنل اردو یونیورسٹی  
 MAULANA AZAD NATIONAL URDU UNIVERSITY

(A Central University Under Ministry of Education, Government of India)

Accredited 'A+' grade by NAAC

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SCHOOL OF SCIENCES

Department of Vocational Studies and Skill Development



**B. Voc. Emergency & Trauma Care Technology (B. Voc. - ETT)**  
**SEMESTER- II**

S. No.	Component	Title of The Paper	Paper Code	Credits	Marks (Theory)		Marks (Practical)		Total
					External Assessment	Internal Assessment	External Assessment	Internal Assessment	
1.	Skill Paper - 1	Human Anatomy Part-II (Theory)	BVET201CCT	04	70	30	---	---	100
		Human Anatomy Part-II (Lab)	BVET201CCP	02	---	---	35	15	50
2.	Skill Paper - 2	Human Physiology Part-II (Theory)	BVET202CCT	04	70	30	---	---	100
		Human Physiology Part-II (Lab)	BVET202CCP	02	---	---	35	15	50
3.	Skill Paper - 3	Pathology (Theory)	BVET203CCT	04	70	30	---	---	100
		Pathology (Lab)	BVET203CCP	02	---	---	35	15	50
4.	Non-Skill Paper- 4	Pharmacology (Theory)	BVET204CCT	03	70	30	---	---	100
		Pharmacology (Lab)	BVET204CCP	01	---	---	35	15	50
5.	Non-Skill Paper- 5	Environmental Studies (Theory)	UGBT201AET	04	70	30	---	---	100
6.	Non-Skill Paper- 6	Soft skill & Personality Development (Theory)	BVET205CCT	04	70	30	---	---	100
<b>Total</b>				<b>30</b>					<b>800</b>
<b>Mandatory Non CGPA Courses</b>									
7.	Non-Skill Paper- 7	Islamiyat (Theory)	UGIS201NCT	02	35	15	---	---	50
<b>Total</b>				<b>02</b>					<b>50</b>

**B. Voc. (Emergency & Trauma Care Technology)**

**SEMESTER-II**

**(Skill Paper - 1) Human Anatomy - II (Theory)**

**Credits – 04**

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**Unit I:**

Anatomy of Nervous system, structure of Neurons, parts, Classification, of CNS, Structure of Human brain, ( HIND,MID & FORE BRAIN), Location, functions, & covering of brain, blood supply of brain, Spinal cord structure, functions, PNS, ANS, Sense organs, spinal & Cranial nerves.

**Unit II:**

Excretory system, parts, kidneys, Structure, Location, & functions, ureter, Urinary bladder, Urethra, (Male & Female ), structure & function of Nephron.

**Unit III:**

Reproductive system, parts, of reproductive system-male-testis, Vasdeference, Epididymis, Prostate, Duct system, Accessory organs, Structures & morphology.  
Female Uterus, Fallopian tubes, Ovaries, Duct system, Accessory organs, Mammary Glands-Detailed study.

**Unit IV:**

Endocrine system, all endocrine glands, their functions, Thyroid, Para thyroid, Pituitary, Adrenal glands, & Islets of Pancreas, Supra renal glands, Structures-Detailed study.

**B. Voc. (Emergency & Trauma Care Technology)**

**SEMESTER-II**

**(Skill Paper - 1) Human Anatomy II (Lab)**

**Credits – 02**

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- **Nervous System**
  - Practical demonstration of all parts of Brain, spinal cord, Histology of thin and thick skin, eye ball.
  
- **Excretory system**
  - Kidneys
  - Ureter
  - Urinary bladder
  
- **Reproductive System**
  - Saggital section – Male & Female pelvis
  - Uterus & ligaments
  - Ovary
  - Prostate
  - Seminal vesicals
  - Vas deferens
  - Testis
  
- **Endocrine System**
  - Pituitary gland
  - Pineal body
  - Thyroid & parathyroid gland
  - Adrenal
  - Pancreas
  - Gonads – Ovary & Testis

**B. Voc. (Emergency & Trauma Care Technology)**  
**SEMESTER-II**  
**(Skill Paper - 2) Human Physiology Part-II (Theory)**  
**Credits – 04**

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**PHYSIOLOGY**

**Unit -I      Nervous system**

- Structure & Properties of Neuron.
- Nerve- Classification, injury.
- Types and properties of Receptors
- Synapse and synaptic transmission.
- Reflex and its properties.
- Spinal cord-Ascending & Descending tracts.
- Thalamus , Basal ganglia , Cerebellum, Cerebral cortex, Hypothalamus & Cerebrospinal fluid.
- Autonomic nervous system. Ascending and descending tracts.
- **Special sense and skin**
- Vision,
- Audition,
- Olfaction,
- Gustation.
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**Unit -II      Excretory System**

**Functions of Kidney**

**Unit – III Reproductive system**

- Male reproductive organs-Spermatogenesis and testosterone actions.
- Female reproductive organs.
- Contraception Methods.

**Unit – IV      Endocrine system**

- Hypothalamus hypophyseal inter relationship.
- Anterior pituitary hormones and their functions.
- Posterior pituitary hormones and their actions.
- Thyroid hormones, biosynthesis and functions.
- Parathyroid hormones ,functions.
- Insulin, glucagons, actions and Diabetes mellitus.
- Adrenal cortex hormones and their functions.
- Adrenal medullary hormones and their actions.

**B. Voc. (Emergency & Trauma Care Technology)**

**SEMESTER-II**

**(Skill Paper - 2) Human Physiology Part-II (Lab)**

**Credits – 02**

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1. WBC.
2. Blood pressure.
3. Bleeding time
4. Clotting time.
5. Charts and spotters.

**B. Voc. (Emergency & Trauma Care Technology)**

**SEMESTER-II**

**(Skill Paper - 3) Pathology (Theory)**

**Credits – 04**

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**1. CVS**

- Atherosclerosis
- Ischemic heart disease
- Congenital heart disease
- Valvular heart disease

**2. RESPIRATORY SYSTEM**

- Bronchial Asthma
- Emphysema
- Bronchiectasis

**3. GIT**

- Gastric ulcer
- Tumors of GIT

**4. HEPATOBILIARY**

- Hepatitis
- Liver Abscess
- Cirrhosis
- Cholecystitis

**5. KIDNEY AND URINARY TRACT**

- Renal stones
- UTI and Pyelonephritis
- Renal cell carcinoma(RCC)
- Renal Failure

**6. REPRODUCTIVE SYSTEM**

- Diseases of testis, uterus, cervix and ovary

**7. CNS**

- Infections

**8. BONES and JOINTS**

- Septic Arthritis
- Osteomyelitis
- Rheumatoid Arthritis

**9. ANEMIA**

**10. AUTOIMMUNE DISEASES**

**B. Voc. (Emergency & Trauma Care Technology)**

**SEMESTER-II**

**(Skill Paper - 3) Pathology (Lab)**

**Credits – 02**

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**INSTRUMENT TEST**

- RBC Pipette
- WBC Pipette
- Sahli's Pipette
- Wintrobe's PCV tube
- Hb Estimation
- Blood grouping

**SPECIMEN**

- Chronic Pyelonephritis
- RCC
- SCC – Foot
- Leiomyoma – Fibroid uterus
- Gall stones
- Appendicitis
- Liver abscess

## **B. Voc. (Emergency & Trauma Care Technology)**

### **SEMESTER-II**

#### **(Non - Skill Paper - 4) Pharmacology (Theory)**

**Credits – 03**

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#### **Unit I:**

- Pharmacodynamics-Adverse drug effects
- Drugs acting on Autonomic Nervous System, Peripheral Nervous System and Drugs acting on Central Nervous system

#### **Unit II**

- General considerations-Cholinergic system & drugs-Anticholinergic drugs-Adrenergic drugs-antiadrenergic drugs-Drugs acting on autonomic ganglia.

#### **Unit III**

- Skeletal muscle relaxants-Local anaesthetics,General anaesthetics-Ethyl & Methyl alcohol-Sedatives-Hypnotics-Antiepileptics-Antiparkinsonian drugs- Drugs used in mental illness-Opioid analgesics and Non opioid Analgesics- Nonsteroidal Antiinflammatory drugs

#### **Unit IV**

- Cardiovascular drugs , Drugs affecting Blood & Blood formation and Drugs on Respiratory system
- Cardiac glycosides,Antiarrhythmic drugs, Antianginal drugs,Antihypertensives and Diuretics,Haematinics,Erythropoietin,,Drugs affecting-coagulation,Fibrinolytic and Antiplatelet drugs,Treatment of cough and antiasthmatic drugs.

#### **Unit V**

- Antimicrobial drugs
- General consideration-Antibiotics-Antibacterial agents-Antitubercular drugs-Antifungal-Antileprotic-Antiviral-Antimalarial-Antiamoebic-Antiprotozoal drugs-Cancer Chemotherapy,Antiseptic-Disinfectant-others.

#### **Unit VI**

- Hormones & related Drugs, Drugs used in Gastrointestinal diseases & Miscellaneous drugs
- Corticosteroids,Antithyroid drugs and Drugs for Diabetes Mellitus, Treatment of Vomiting,Constipation,Diarrhoea and Treatment of peptic ulcer
- Vitamins, Vaccines, Sera and chelating agents.

**B. Voc. (Emergency & Trauma Care Technology)**

**SEMESTER-II**

**(Non-Skill Paper - 4) Pharmacology (Lab)**

**Credits – 01**

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1. Instruments: Needles-Intravenous, Intrathecal, Spinal, Intra arterial
2. Students Discussion: Syringes: Tuberculin, I.V cannula
3. Scalp. Vein set
4. Students Discussion: Enema can, Inhalers, Inhalers, Nebulizers
5. Tablets – Enteric coated, Sustained release, Sub-lingual
6. Capsules, Spansules, Pessary, Suppository
7. Topical Preparation, Ointment, Lotion, Powder, Drops – eye / ear
8. Charts: Mechanism of action of drugs, adverse effects, toxicology
9. Spotters: drugs

**B. Voc. (Emergency & Trauma Care Technology)**  
**SEMESTER-II**  
**(Non - Skill -Paper - 5) Environmental Studies (Theory)**  
**Credits – 04**

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**Ability Enhancement Compulsory Courses (AECC-Environmental Studies)**

**Unit-I: Introduction to environmental studies**

- Multidisciplinary nature of environmental studies; components of environment- atmosphere, hydrosphere, lithosphere and biosphere.
- Scope and importance; Concept of sustainability and sustainable development.

**Unit-II: Ecosystems**

- What is an ecosystem? Structure and function of ecosystem; Energy flow in an ecosystem: food chain, food web and ecological succession. Case studies of the following ecosystems:
  - a) Forest ecosystem
  - b) Grassland ecosystem
  - c) Desert ecosystem
  - d) Aquatic ecosystems (ponds, streams, lakes, rivers, oceans, estuaries)

**Unit-III: Natural resources: Renewable and Non-renewable Resources**

- Land Resources and land use change; Land degradation, soil erosion and desertification.
- Deforestation: Causes and impacts due to mining, dam building on environment, forests, biodiversity and tribal populations.
- Water: Use and over-exploitation of surface and ground water, floods, droughts, conflicts over water (international & inter-state).
- Heating of earth and circulation of air; air mass formation and precipitation.
- Energy resources: Renewable and non-renewable energy sources, use of alternate energy sources, growing energy needs, case studies.

**Unit-IV: Biodiversity and Conservation**

- Levels of biological diversity: genetic, species and ecosystem diversity; Biogeography zones of India; Biodiversity patterns and global biodiversity hot spots.

- India as a mega-biodiversity nation; Endangered and endemic species of India.
- Threats to biodiversity: Conservation of biodiversity: In-situ and Ex-situ conservation of biodiversity.
- Ecosystem and biodiversity services: Ecological, economic, social, ethical, aesthetic and informational value.

### **Unit-V: Environmental Pollution**

- Environmental pollution: types, causes, effects and controls; Air, water, soil, chemical and noise pollution
- Nuclear hazards and human health risks
- Solid waste management: Control measures of urban and industrial waste.
- Pollution case studies.

### **Unit-VI: Environmental Policies & Practices**

- Climate change, global warming, ozone layer depletion, acid rain and impacts on human communities and agriculture.
- Environment Laws: Environment Protection Act: air (Prevention & Control of Pollution) Act; Water (Prevention and control of Pollution) Act; Wildlife Protection Act; Forest Conservation Act; International agreements; Montreal and Kyoto protocols and conservation on Biological Diversity (CBD). The Chemical Weapons Convention (CWC).
- Nature reserves, tribal population and rights, and human wildlife conflicts in Indian context.

### **Unit-VII: Human Communities and the Environment**

- Human population and growth: Impacts on environment, human health and welfare.
- Carbon foot-print.
- Resettlement and rehabilitation of project affected persons; case studies,
- Disaster management: floods, earthquakes, cyclones and landslides.
- Environmental movements: Chipko, Silent valley, Bishnios of Rajasthan.
- Environmental ethics: Role of Indian and other religions and culture in environmental conservation.
- Environmental communication and public awareness, case studies (e.g., CNG vehicles in Delhi).

### **Unit-VIII: Field work**

- Visit to an area to document environmental assets; river/forest/flora/fauna, etc.
- Visit to a local pollution site-Urban/Rural/Industrial/Agricultural.

- Study of common plants, insects, birds and basic principles of identification.
- Study of simple ecosystems-pond, river, Delhi ridge, etc.

### **Suggested Readings:**

1. Carson, R. 2002. Silent Spring. Houghton Mifflin Harcourt.
2. Gadgil. M., & Guha, R. 1993. This Fissured Land: An Ecological History of India. Univ. of California Press.
3. Gleeson. B. and Low, N. (eds.) 1999. Global Ethics and Environment, London, Routledge.
4. Gleick, P.H. 1993. Water in Crisis, Pacific Institute for Studies in Dev., Environment & Security. Stockholm Env. Institute, Oxford Univ. Press.
5. Groom, Martha J. Gary K. Meffe, and Carl Ronald carroll. Principles of Conservation Biology. Sunderland: Sinauer Associates, 2006.
6. Grumbine, r. Edward, and Pandit, M.K. 2013. Threats from India's Himalaya dams. Science, 339: 36-37.
7. McCully, P.1996. Rivers no more: the environmental effects of dams (pp.29-64). Zed Books.
8. McNeil, John R. 2000. Something New Under the Sun: An Environmental History of the Twentieth Century.
9. Odum, E.P., Odum, h.T. & Andrews, J.1971. Fundamentals of Ecology. Philadelphia: Saunders.
10. Pepper, I.L., Gerba, C.P. & Brusseau, M.L. 2011. Environmental and Pollution Science. Academic Press.
11. Rao, M.N. & Datta, A.K. 1987. Waste Water Treatment. Oxford and IBH Publishing Co. Pvt. Ltd.
12. Reven, P.H., Hassenzahl, D.M. & Berg, L.R. 2012. Environment. 8<sup>th</sup> edition. John Wiley & Sons.
13. Resencranz, A., Divan, S., & Noble, M.L. 2001 Environmental law and policy in India. Tripathi 1992.
14. Sengupta, R. 2003. Ecology and economics: An approach to sustainable development. OUP.
15. Singh, J.S., Singh, S.P. and Gupta, S.R. 2014. Ecology, Environmental Science and Conservation. S. Chand Publishing, New Delhi.
16. Sodhi, N.S., Gibson, L. & Raven, P.H. (eds). 2013. Conservation Biology: Voices from the Tropics. John Wiley & Sons.
17. Thapar, V. 1998. Land of the Tiger: A Natural History of the Indian subcontinent.
18. Warren, C.E. 1971. Biology and Water Pollution Control. WB Saunders.
19. Wilson, E.O. 2006. The Creation: An appeal to save life on earth. New York: Norton.
20. World Commission on environment and Development. 1987. Our Common Future. Oxford University Press.
21. [www.nacwc.nic.in](http://www.nacwc.nic.in)
22. [www.opcw.org](http://www.opcw.org)

**B. Voc. (Emergency & Trauma Care Technology)**  
**(Non - Skill Paper - 5) Soft skill & Personality Development (Theory)**  
**Credits – 04**

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**Objective:** On completion of the course, the students will be able to listen to lectures, public announcements, news on TV, radio and engage in telephonic conversation to communicate effectively and accurately in English used as spoken language for various purposes.

**UNIT - I: Listening Skills:**

Barriers to listening; effective listening skills; feedback skills. Attending telephone calls; note taking. Activities: Listening exercises - Listening to conversation, News and TV reports. Taking notes on a speech / lecture.

**UNIT - II : Speaking and Conversational Skills:**

Components of a meaningful and easy conversation; understanding the cue and making appropriate responses; forms of polite speech; asking and providing information on general topics. The study of sounds of English, stress and intonation. Situation based Conversation in English.

**UNIT - III : Essentials of Spoken English:**

Activities, Making conversation and taking turns, Oral description or explanation of a common object, situation or concept, Giving interviews.

**UNIT - IV**

Oral Presentation with / without audio visual aids. Group Discussion . Listening to any recorded or live material and asking oral questions for listening comprehension.

**Books Recommended:**

- Soft skills Training A workbook to develop skills for employment by Fredrick H. Wentz
- Personality Development and Soft skills , Oxford University Press by Barun K. Mitra
- Classroom technique to improve the soft skills
- Surprise writing on current issues
- General grooming sessions to face the interview
- Group discussions
- Motivational classes to improve communication and confidence power

**B. Voc. (Emergency & Trauma Care Technology)**

**SEMESTER-II**

**(Non-Skill Paper - 7) ISLAMIYAT (Theory)**

**Credits – 02**

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