

VALUE ADDITION COURSE (VAC)

DEPARTMENT OF ZOOLOGY

Value Addition Course (VAC) - Food, Nutrition and Health

No. of Hours – 30

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

| Course Title | Credits | Credit distribution of the Course | | | Eligibility criteria | Pre-requisite of the Course (if any) |
|---------------------------------|---------|-----------------------------------|----------|--------------------|-------------------------------|--------------------------------------|
| | | Lecture | Tutorial | Practical/Practice | | |
| VAC: Food, Nutrition and Health | 2 | 2 | 0 | 0 | Passed Class XII with Biology | Nil |

Learning Outcomes:

After studying this course, the students will be able to:

1. Learn the nutritional care concepts of dietetics.
2. Study the chemistry of food and how cooking, processing, and preservation affect food quality.
3. Understand the fundamentals of nutrition science in relation to macro and micro nutrients.

4. Learn how to manage dietary departments in organizations.
5. Learn how to evaluate patient medical records and interpret medical history.
6. Have a better understanding of the association of food and nutrition in promoting healthy living.
7. Think more holistically about the relationship between nutrition science, social and health issues.

| Unit | Topic | No. of Hours |
|-----------------|---|---------------------|
| Unit I | Basic concept of food and nutrition Food Components and food-nutrients, Concept of a balanced diet, nutrient needs and dietary pattern for various groups- adults, pregnant and nursing mothers, infants, school children, adolescents and elderly. Food Pyramid, Nutritional anthropometry- BMI, waist-to-hip ratio, skin-fold test and bioelectrical impedance; interpretation of these measurements | 10 |
| Unit II | Food Biochemistry Carbohydrates, Lipids, Proteins; their dietary source and role. Vitamins- their dietary source and importance. Minerals- their biological functions. Dietary Fibers- Definition, their dietary source and nutritional importance. Elementary idea of Probiotics, Prebiotics and Organic Food. | 10 |
| Unit III | Health Definition and concept of health, major nutritional deficiency diseases- | 10 |

(kwashiorkor and marasmus), deficiency disorders, their causes, symptoms, treatment, prevention and government programmes, if any. Life style related diseases- hypertension, diabetes mellitus, atherosclerosis and obesity; their causes and prevention through dietary and lifestyle modifications. Social health problems- smoking, alcoholism, drug dependence and common ailments- cold, cough, and fevers, their causes and treatment.

Recommended Readings

Textbooks:

- Food, Nutrition and Health- S. Goyal and P. Gupta
- Food, Nutrition and Health- L. Tapsell
- Introduction to Nutrition and Metabolism- David A. Bender and Shauna M. C. Cunningham
- Nutrition and Dietetics- Shubhangini A. Joshi
- Textbook of Food Science and Nutrition- Sunita Roy Chowdhury and Bani Tamber Aeri
- Nutrition Science 7th Edition – B. Srilakshmi
- The Nutritionist: Food, Nutrition, and Optimal Health- Robert Wildman

Value Addition Course (VAC) – Intellectual Property Rights

No. of Hours – 30

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

| Course Title | Credits | Credit distribution of the Course | | | Eligibility criteria | Pre-requisite of the Course (if any) |
|-----------------------------------|---------|-----------------------------------|----------|--------------------|-------------------------------|--------------------------------------|
| | | Lecture | Tutorial | Practical/Practice | | |
| VAC: Intellectual Property Rights | 2 | 2 | 0 | 0 | Passed Class XII with Biology | Nil |

Learning Outcomes:

After studying this course, the students will be able to:

- Understand the meaning and evolution of Intellectual property law, and also the importance of protecting Intellectual property.
- Understand the concept and registration process of a patent and also the recent developments in patent system.
- Understand the concept of Trademarks and Copyrights, and also know the registration process along with infringement, offences, and penalties.

| Unit | Topic | No. of Hours |
|------|-------|--------------|
|------|-------|--------------|

| | | |
|-----------------|---|-----------|
| Unit I | <p>Introduction to IPR Meaning of intellectual property, Origin, Nature, Meaning of Intellectual Property Rights. Introduction of the Trade-Related Aspects of Intellectual Property Rights (TRIPS), Agreement and the role of the World Trade Organization (WTO) in shaping international IPR regulations, highlighting the implications of TRIPS compliance at both national and global levels. Kinds of Intellectual property rights - Copy Right, Patent, Trade Mark, Trade Secret and trade dress, Design, Layout Design, Geographical Indication, Plant Varieties and Traditional Knowledge.</p> | 10 |
| Unit II | <p>Patent rights and copy rights Origin, Meaning of Patent, Types, Inventions which are not patentable, Registration Procedure, Rights and Duties of Patentee, Assignment and license, Restoration of lapsed Patents, Surrender and Revocation of Patents, Infringement, Remedies and Penalties. Copy Right - Origin, Definition and Types of Copy Right, Registration procedure, Assignment and license, Terms of Copy Right, Piracy, Infringement, Remedies, Copy rights with special reference to softwares.</p> | 10 |
| Unit III | <p>Trade marks Origin, Meaning and Nature of Trade Marks, Types, Registration of Trade Marks, Infringement and Remedies, Offences relating to Trade Marks, Passing</p> | 10 |

| | | |
|---|---|--|
| | Off, Penalties. Domain Names on cyber space. Design- Meaning, Definition, Object, Registration of Design, Cancellation of Registration, International convention on design, functions of Design. Semiconductor, Integrated circuits and layout design Act-2000. | |
| <p>Recommended Readings</p> <p>Textbooks</p> <ul style="list-style-type: none"> • Intellectual Property Rights - P. Narayanan • Intellectual Property Rights - Volume. 1and2 - J. Rattan • Intellectual Property Rights and the Law, Gogia Law Agency - G. B. Reddy • Law relating to Intellectual Property, Universal Law Publishing Co - B. L. Wadehra • IPR - P. Narayanan • Law of Intellectual Property, Asian Law House - S. R. Myneni. | | |

Value Addition Course (VAC) - Public Health and Hygiene

No. of Hours – 30

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

| Course | Credit | Credit distribution of the Course | Eligibility criteria | Pre-requisite of |
|--------|--------|-----------------------------------|----------------------|------------------|
|--------|--------|-----------------------------------|----------------------|------------------|

| Title | s | Lecture | Tutorial | Practical/Practice | | the Course (if any) |
|-------------------------------|---|---------|----------|--------------------|-------------------------------|---------------------|
| VAC:Public Health and Hygiene | 2 | 2 | 0 | 0 | Passed Class XII with Biology | Nil |

Learning Outcomes:

After studying this course, the students will be able to:

1. Get a holistic overview of the interdisciplinary nature of public health.
2. Understand public health issues in India particularly related to Malnutrition, sanitation issues and related burden of infectious disease, and the role of pollution as a public health concern.
3. Get knowledge on personal and public hygiene.

| Unit | Topic | No. of Hours |
|----------------|---|--------------|
| Unit I | Nutrition – definition, importance of Carbohydrate, Protein, Lipids and Minerals. Balanced diet - Basics of meal planning, Concept of energy, calories. Food adulteration and food fortification. Maternal health, Population control and family welfare. Sexually transmitted diseases – HIV/AIDS, syphilis, gonorrhoea. Management of diseases like Obesity, Diabetes mellitus, Cardiovascular disorders. | 10 |
| Unit II | Communicable/Contagious, Non-Communicable, Vector Borne, Sexually transmitted diseases and other social health problems Communicable and vector borne diseases and prevention: Malaria, Typhoid, Hepatitis (Jaundice), Dengue, chikunguniya: Causes and prevention methods. | 10 |

| | | |
|---|--|-----------|
| | HIV/AIDS, syphilis, gonorrhoea. Management of diseases like Obesity, Diabetes mellitus, Cardiovascular disorders. Effects of smoking, alcoholism, substance abuse and drug abuse. | |
| Unit III | Ill effects of smoking, alcoholism, substance abuse and drug abuse. Hygiene: Definition, personal hygiene- body odour, oral hygiene, grooming, feminine hygiene, hand washing, toiletry. Community Hygiene, Environmental Sanitation and Sanitation in Public places occupational hygiene. | 10 |
| <p>Recommended Readings</p> <p>Textbooks</p> <ul style="list-style-type: none"> • Textbook of Environmental Hygiene for Nursing Students – K. K. Gill • A Short Book of Public Health – V. K. Muthu • Hygiene and Public Health- George Moses • Principles of Occupational Health and Hygiene: An Introduction- Cherilyn Tillman • Health and Hygiene: with Anatomy and Physiology- Swami Sivananda • A College Textbook of Health and Hygiene- Arvind Kumar Goel | | |

Value Addition Course (VAC) – Research Publication Ethics

No. of Hours – 30

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

| Course Title | Credits | Credit distribution of the Course | | | Eligibility criteria | Pre-requisite of the Course (if any) |
|----------------------------------|---------|-----------------------------------|----------|--------------------|-------------------------------|--------------------------------------|
| | | Lecture | Tutorial | Practical/Practice | | |
| VAC: Research Publication Ethics | 2 | 2 | 0 | 0 | Passed Class XII with Biology | Nil |

Learning Outcomes:

After studying this course, the students will be able to:

1. Have awareness about the publication ethics and publication misconducts along with the philosophy of science and ethics, research integrity and publication ethics.
2. Identify research misconduct and predatory publications, plagiarism tools; and understand indexing and citation databases, open access publications, research metrics (citations, h-index, impact Factor, etc.).

| Unit | Topic | No. of Hours |
|---|--|---------------------|
| Unit I | Philosophy and Ethics i. Introduction to Philosophy: definition, nature and scope, concept, branches ii. Ethics: Definition, moral philosophy, nature of moral judgments and reactions. | 10 |
| Unit II | Scientific Conduct i. Ethics with respect to science and research ii. Intellectual honesty and research integrity iii. Scientific misconducts: Falsification, Fabrication and Plagiarism (FFP) iv. Redundant publications: duplicate and overlapping publications, salami slicing v. Selective reporting and misrepresentation of data | 10 |
| Unit III | Publication Ethics i. Open access publications and initiatives ii. SHERPA/RoMEO online resource to check publisher copyright and self-archiving policies iii. Software tool to identify predatory publications developed by SPPU: UGC-CARE list of journals iv. Journal finder/journal suggestion tools viz. JANE, Elsevier Journal Finder, Springer Journal Suggester, etc. | 10 |
| Recommended Readings Textbooks <ul style="list-style-type: none"> • Philosophy of Science – A. Bird | | |

- Ethics in Competitive Research: Do not get scooped; do not get plagiarized - P. Chaddah
- National Academy of Sciences, National Academic of Engineering and Institute of Medicine. (2009). *On being a Scientist: A Guide to Responsible Conduct in Research*, Third edition, National Academic Press.
- Indian National Academic of Science (INSA), Ethics in Science, Education, Research and Governance (2019). ISBN: 978-81-939482-1-7.
- Beall, J. (2012). *Predatory publishers are corrupting open access*. Nature, 489(7415), 179.

Value Addition Course (VAC) – Mind Body Medicine

No. of Hours – 30

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

| Course Title | Credits | Credit distribution of the Course | | | Eligibility criteria | Pre-requisite of the Course (if any) |
|--------------------------------|---------|-----------------------------------|----------|--------------------|-------------------------------|--------------------------------------|
| | | Lecture | Tutorial | Practical/Practice | | |
| VAC: Mind Body Medicine | 2 | 2 | 0 | 0 | Passed Class XII with Biology | Nil |

Learning Outcomes:

After studying this course, the students will be able to:

- Gain a comprehensive knowledge of the mind–body techniques/practices and its use in health promotion and maintenance.
- Gain knowledge of a variety of tools and techniques to achieve optimal health.

| Unit | Topic | No. of Hours |
|--|--|---------------------|
| Unit I | History, scope and significance of mind-body medicine. Practices such as meditation, breathing techniques, tai chi, or yoga interactions among the mind, body and behaviour. Mind–body techniques as psychological techniques, emotional therapies or spiritual healing. | 10 |
| Unit II | Mind Body Wellness Elective for MBBS students Mind-body medicine, lifestyle modification including diet, exercise and yoga. Stress and resilience building, | 10 |
| Unit III | Fundamentals of mind body medicine and lifestyle modifications with scientific foundations. Mind body medicine techniques like meditation, biofeedback, exercise and yoga. Stress Management and Resilience Technique (SMART). | 10 |
| <p>Recommended Readings</p> <p>Textbooks</p> <ul style="list-style-type: none"> • Lifestyle As Medicine - A. Thomas, S. Hansdak, D. Alexander and H. Giebel • Healthy Mind, Healthy Body (New Thoughts On Health- The Ultimate Medicine) – R. Powell, Nisargadatta and P. Madill • Yoga for the Body, Mind and Soul: S. Mukundananda • Quantum Healing: Exploring the Frontiers of Mind/Body Medicine: D. Chopra | | |

Value Addition Course (VAC) – Emotional Intelligence

No. of Hours – 30

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

| Course Title | Credits | Credit distribution of the Course | | | Eligibility criteria | Pre-requisite of the Course (if any) |
|-----------------------------|---------|-----------------------------------|----------|--------------------|-------------------------------|--------------------------------------|
| | | Lecture | Tutorial | Practical/Practice | | |
| VAC: Emotional Intelligence | 2 | 2 | 0 | 0 | Passed Class XII with Biology | Nil |

Learning Outcomes:

After studying this course, the students will be able to:

1. Have Self-awareness, self-management, social awareness and relationship management.
2. Discover Personal competence and technique of building emotional intelligence.
3. Gain insights into establishing positive relationship.

| Unit | Topic | No. of Hours |
|------|-------|--------------|
|------|-------|--------------|

| | | |
|--|--|-----------|
| Unit I | Nature and significance Models of Emotional Intelligence: ability and trait Building block of emotional Intelligence: Self-awareness, self-management, social awareness and relationship management. | 10 |
| Unit II | Self-awareness: Observing and recognizing one's own feeling, knowing one's strengths and area of development Self-management: Managing emotions, anxiety, fear and anger. | 10 |
| Unit III | Social Awareness: Others perspective, empathy and compassion | 10 |
| Recommended Readings | | |
| Textbooks | | |
| <ul style="list-style-type: none"> • Self-Discipline: Life Management – D. Johnson • HBR's 10 Must Reads on Emotional Intelligence (2015) • HBR's 10 Must Reads on Managing Yourself (2015) | | |

Value Addition Course (VAC) – Goat and Sheep farming

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

| Course Title | Credits | Credit distribution of the Course | | | Eligibility criteria | Pre-requisite of the Course (if any) |
|----------------------|---------|-----------------------------------|----------|--------------------|-----------------------|--------------------------------------|
| | | Lecture | Tutorial | Practical/Practice | | |
| SEC: Goat and | 2 | 1 | 0 | 1 | Passed Class XII with | Nil |

| | | | | | | |
|---------------|--|--|--|--|---------|--|
| Sheep farming | | | | | Biology | |
|---------------|--|--|--|--|---------|--|

- **Learning Outcomes:**

After studying this course student will able to understand:

1. To Identify different breeds of Goat and Sheep for Goat and Sheep Farming.
2. To Structure goat and Sheep housing focusing on waste management.
3. To Prepare for fodder cultivation & feeding for goats and Sheep maintaining constituents of livestock feed component.
4. To Manage overall Goat and sheep health and diseases.

| Unit | Topic | No. of Hours |
|-----------------|--|--------------|
| Unit I | Introduction to Goat and sheep Farming. Brief history about goat and sheep farming in Uttarakhnad and India. Importance of goat and sheep farming. Employment potential in goat and sheep farming. Concept of breed and Breeding system (different Meat, Milch and Dual breeds of Goat). | 10 |
| Unit II | Indigenous goat and sheep breeds of economic importance. Exotic breeds of goats and Sheep experienced in India. Essential Tools/Equipment for goat and sheep housing and management .Different methods of waste handling and waste disposal in goat farming. The routine cleaning of goat and sheep shed. | 10 |
| Unit III | Various structures of goat and sheep farm. Various dry roughage, hay, green fodder and tree leaves for goats and Sheep Cost effective ration formulation newborn, grower, buck and doe. Reproduction characteristics of goat and sheep . Different systemic diseases of goats and Sheep and their management. food and feeding behaviour of goat and sheep . | 10 |

| | | |
|--|--|--|
| | Study of different parts of goat and Sheep (male/female). Identification of important breeds of goat and sheep. Study of important characteristics of exotic and indigenous goat and sheep | |
|--|--|--|

Recommended Readings

Textbooks:

- Goat, Sheep and Pig: Production and management- Jagdish Prasad
- Comprehensive Book on Goat Farming – Gupta and Amrutkar'