Micronutrients in Human Nutrition

HND-101	Micronutrients in Human Nutrition	3(3-0)

Learning Outcomes

After completing the course, the students will be able to:

- Diagnose micronutrient deficiency disorders.
- Treat patients suffering from nutritional deficiency disorders through diet therapy.
- Prepare diet plan focusing on micronutrient deficiency.

SDGs addressed in the course:

SDG # 3 (Health and Wellbeing)

SDG # 4 (Quality Education)

Teaching Mode:

This course will be taught in hybrid learning mode offering a substantial portion of contents and course activities online through learning management system.

Course Contents

Theory:

Vitamins: Nomenclature, history, development of the vitamins concept; Fat and water soluble vitamins: Sources, chemistry, absorption, transport and storage, metabolism, function, deficiency, bioassay, interaction with other nutrients, recommended daily allowances and toxicities; Diagnosis, treatments and prevention of vitamin deficiencies in human; Stability of vitamins under different storage conditions; Vitamin like compounds; Losses of vitamin during food processing; Minerals: Types, history and developments of the minerals concept; Criteria of essentiality of minerals and their classification; Minerals distribution in human body; Macro and micro minerals: Dietary sources, absorption, metabolism, metabolic function, deficiency symptoms and disorders, recommended daily allowances, diagnosis, treatments and prevention of mineral deficiencies in human; Water and electrolytes.

Week wise Lecture Plan

Week No	Description
1	History & Nomenclature of Vitamins development of the vitamins concept
2	Fat and water soluble vitamins Sources, chemistry, absorption, transport and storage
3	Metabolism, function & deficiency of vitamins Bioassay, interaction with other nutrients
4	Recommended daily allowances and toxicities
5	Diagnosis, treatments and prevention of vitamin deficiencies in human
6	Stability of vitamins under different storage conditions Losses of vitamin during food processing
7	Vitamin like compounds
8	Losses of vitamin during food processing
9	**MID SEMESTER EXAMS**
10	Introduction to Minerals Types, history and developments of the minerals concept
11	Criteria of essentiality of minerals and their classification
12	Minerals distribution in human body
13	Macro and micro minerals Dietary sources, absorption, metabolism, metabolic function
14	Deficiency symptoms and disorders, recommended daily allowances
15	Diagnosis & treatments of mineral deficiencies in human;
16	Prevention of mineral deficiencies in humans
17	Water and electrolytes.
18	**END SEMESTER EXAMINATION**

Text Book

1. Gropper, S.S. and J.K. Smith. 2015. Advanced Nutrition and Human Metabolism. 6th Ed.
Wadsworth Cengage Learning, Belmont, CA, USA.

Suggested Readings:

1. Allen, L. 2006. Guidelines on Food Fortification with Micronutrients. World Health
Organization, Geneva, Switzerland.
2. Bender, D.A. 2009. Nutritional Biochemistry of Vitamins, 2nd Ed. Cambridge University
Press, Cambridge, UK.
3. Di-Silvestro, R.A. 2004. Handbook of Minerals as Nutritional Supplements. CRC Press,
Taylor & Francis Group, Boca Raton, FL, USA.
4. Gropper S.S. and J.K. Smith. 2012. Advanced Nutrition and Human Metabolism. 6th Ed. Wadsworth Cengage Learning, Belmont, CA, USA.