

MASTER OF PHILOSOPHY. NUTRITION AND DIETETICS

SEM	SUB CODE	COURSE	SUBJECT TITLE	HRS / WEEK	CREDIT	CIA Mark	SE MARK	TOTAL MARK
I	17MPND1C1	CORE I	Research Methodology and Statistics	4*	4	40	60	100
	17MPND1C2	CORE II	Advances in Nutrition and Dietetics	4*	4	40	60	100
	17MPND1C3	CORE III	Research Topics in Nutrition and Dietetics	4*	4	40	60	100
	17MPND1C4	CORE IV	Teaching and Learning Strategies	4*	4	40	60	100
		*One hour library for each course						
	TOTAL			16	16	160	240	400
II	17MPND 2PW		Dissertation**	-	8	-	-	200
GRAND TOTAL				-	24	-	-	600

** Evaluation of the Dissertation and Viva Voce shall be made jointly by the Research Supervisor and the External Examiner.

M.Phil – Dissertation

Evaluation of Dissertation 160 Marks

Viva Voce 40 Marks

SEMESTER – I: CORE –I

RESEARCH METHODOLOGY AND STATISTICS

Course Code : 17MPND1C1

Hours/Week : 4

Credit : 4

Max. Marks : 100

Internal Marks : 40

External Marks : 60

Objectives

To enable the students to

1. Develop scientific skills in formulating a problem for research
2. Evolve research designs, methods and techniques in conducting a research
3. Develop skill to undertake independent research in the area of specialization.
4. Prepare research report and draw inferences using appropriate statistical techniques.

UNIT I

12 hours

Research - Fundamental concepts:

- 1.1 **Research:** Definition, Need, Importance and Meaning of research, Characteristics of research, Types of Research. **Methods of acquiring knowledge** - Inductive and Deductive Reasoning, scientific method and its applications.
- 1.2 **Research Problem** – Definition, Identification, selection of a problem for Research, survey of literature. **Hypothesis** – Meaning, importance, types .testing of hypothesis.
- 1.3 **Variables** – Meaning, identification in relation to the research problem – independent, dependent, control and interval variables.

UNIT II

12 hours

Research Design and Methods:

- 2.1 **Research Design** – Meaning, Purpose of research design, steps in formulation of a design. **Types of research design** – Historical, Descriptive, and Experimental – true experimental, quasi experimental and exposit facto designs. Experiments in vivo and invitro, evaluation and action research. Difference between applied and pure research. **Pilot studies**- Meaning, concept, and importance.
- 2.2 **Experimental studies in nutrition** – Pre clinical and clinical studies – human intervention trials. Ethical issues – Regulation and guidelines for research on human subjects- Informed consent process. **Other researches and methods** - Field surveys, diagnostic and evaluation research. #Qualitative and quantitative methods in research#.

UNIT III

12 hours

Sampling techniques and tools:

- 3.1 **Sample, Sampling techniques and sampling errors** – Meaning, Population and sample, requisites of a good sample, Selection of a sample, Probability and non-probability sampling techniques, sampling distribution and sampling errors.

- 3.2 **Tools and techniques of data collection**– Questionnaire, Interview schedule, Observation and Experimentation.
- 3.3 **Projective techniques and rating scales**- Psychological tests, Projective techniques, rating scales, Likert and Thurstone, Guttman type scales. Sociometry, Focus Group discussion and PRA. **Characteristics of tools** - Validity, reliability and feasibility.

UNIT IV

12 hours

Analysis of Data and Inferential Statistics:

- 4.1 **Analysis of data** – Categorisation, presentation of data and Frequency distributions. Descriptive statistics – Central measures, Dispersion measures, Skewness and kurtosis.
- 4.2 **Bivariate analysis** - Correlation and regression analysis – Karl Pearson’s product moment. Correlation Co-efficient by ranks, Bi-serial Correlation, Regression analysis. Fitting of Regression lines. **Multi variate analysis** – Multiple correlation and Multiple regression - concepts only
- 4.3 **Para metric tests** - Large and small samples (t test, Z test and F test). **Non - Parametric tests** - Important Non-Parametric tests : Chi-square tests , Sign test. Analysis Of Variance (ANOVA) – One-way and Two-way. **Application of Computer in research** – Collection of reviews. Data entry, Mean, Parametric and Non Parametric tests using SPSS.

UNIT-V

12 hours

Report writing:

Research Report - Structure and qualities of a Research Report, types of research report, presentation, tables, interpretation of research findings, Discussion, footnotes and Bibliography. Evaluation of a Research Report.

#.....# Self-Study portion

TEXT BOOKS

1. C.R.Kothari, Research Methodology (2002).
2. P. Shanthi Sophia and Bharathi, Second Edition, Computer Oriented Statistical Methods/Probability and Statistics, Charulatha publication(2000).

UNIT I : Text Book I,II,
 UNIT II : Text Book I,II
 UNIT III : Text Book I,II
 UNIT IV : Text Book I & II
 UNIT V : Text Book I,II

REFERENCE BOOK

1. R.S.N.Pillai and V. Bagavathi, Statistics, Chand and Company Limited (2001)
2. S.P. Gupta , Statistical Methods, 31st Edition, Sultana Chand and Sons (2002).
3. R.P.Devadas, A Handbook on Methodology of Research, Sri Ramakrishna Vidhyalaya, Coimbatore(1989).
4. P. Ramakrishnan, Biostatistics, Saras Publication(2001). H.M.C. Donald, Burney , Research Methods, Fifth edition, Thomson and Wadsworth Publications(2002).

SEMESTER- I: CORE- II

ADVANCES IN NUTRITION AND DIETETICS

Course Code: 17MPND1C2

Hours/Week: 4

Credit : 4

Max. Marks : 100

Internal Marks : 40

External Marks : 60

Objectives

To enable the students to

1. Understand the role of nutrition in human life
2. Develop the scientific attitude of the students towards research in nutrition and dietetics
3. Gain knowledge about functional foods and Nutraceuticals
4. Gain current application in the field of nutrition research

UNIT I

12hours

Nutrition:

- 1.1 General Principles for deriving human nutrient requirements – Dietary intakes, growth, nutrient balance, Obligatory loss of nutrients. Factorial approach, Nutrient turn over, Depletion and Repletion studies
- 1.2 RDA – Adequate intake, Tolerate upper Intake level(UL), Estimated average Requirement (EAR), Individual variability, Bio-availability of Nutrition
- 1.3 Critical Reviews and current research findings in following nutritional problems in India – Low birth weight, PEM, Anaemia, Iodine Deficiency Disorders

UNIT II

12hours

Current Trends in Food Science

- 2.1 Food Processing - Microwave heating, Hurdle Technology, Pulse Electric Field (PEF), High Pressure Processing (HPP) and Ohmic Heating, Image Processing, Regulatory Issues concerning Food Processing and Food Safety
- 2.2 Food Biotechnology – Transgenic Plants – GM Foods examples Golden Rice, Flavr savr tomato, GM Mustard.
- 2.3 Nutrigenomics – Nutrigenetics, Transcriptomics, Metabolomics, Interaction of genes and Nutrition, Role of Nutrigenomics in life style disorders namely diabetes, CVD and cancer.

UNIT III

12 hours

Functional Foods:

- 3.1 Nutraceuticals present in cereals, Pulses, vegetables, Fruits, Milk and Milk Products, Nuts and Oil Seeds, Fats and Oils, Spices and Herbs used in Indian Cookery. Miscellaneous – Green tea, Sea Weed.
- 3.2 Role of Functional foods in degenerative disorders: Obesity, Heart Disease, Cancer- Colon cancer, Lung cancer, Prostrate cancer, Ovarian and Breast , Diabetes Mellitus, Muscular degeneration and cataract.

UNIT IV

12 hours

Institutional Food Management:

- 4.1 Food Service Institutions – Commercial and Non-Commercial Organization .Current approaches in Human resource Management – Total Quality Management.
- 4.2 Catering Operations – a) Procurement –Purchasing, receiving and storage b) Production – Planning quantity production and Service in different institutions – Hotel, Hostel and Hospital.
- 4.3 #Recent Innovations in Food Service Equipment#
- 4.4 Food Safety, Hygiene and Sanitation

UNIT V

12 hours

Dietetics:

- 5.1 Dietitian – Registered Dietitian, Registered dietitian Nutritionist
- 5.2 Dietetic Association – Indian Dietetic Association, British Dietetics Association, American Dietetic Association, International federation of dietetics
- 5.3 Critical Reviews, recent research findings in the field of dietary management with special reference to : Diabetes Mellitus – IDDM, NIDDM, GDM, Cardiovascular diseases, Renal Diseases, Liver diseases, GI Disorders- Peptic Ulcer, IBW
- 5.4 Diet Counseling – Steps in patient approach and assessment, follow up and computer assisted dietary instructions and patient educations

#.....# Self-Study portion

TEXT BOOKS:

1. Dietary guidelines for Indians, NIN, ICMR, (2010).
2. Potter. N.M. and Birch, G.G., “Food Science”, 5th edition, CBS Publishers and Distributors, New Delhi, (2007).
3. Ower. P. Ward, Fermentation Bio-technology, Principles, Processes and Products. (1989)
4. Knorr, Food Bio-technology, marcel dekker inc, New York.
5. Robert E C Wildman Handbook of Nutraceuticals and Functional Foods (2001).
6. Mohini Sethi and Surjeet Malham, Catering Management and integrated approach, John Wiley & Sons Eastern Limited New Delhi (2007).

UNIT I	: Text Book I
UNIT II	: Text Book II
UNIT III	: Text Book V
UNIT IV	: Text Book VI
UNIT V	: Text Book VIII

REFERENCE BOOK

1. Robinson C.H Normal and Therapeutic Nutrition, 12th edition, Macmillan Publishing Co. Inc, New York (2007)
2. 8. Krause M.V and Mahan L.K Food, Nutrition and Diet therapy, 9th edition, W.B. Saunder Co, Philadelphia (2010).

SEMESTER- I : CORE – IV

TEACHING AND LEARNING STRATEGIES

Course Code : 17MPND1C4	Max. Marks	: 100
Hours/Week : 4	Internal Marks	: 40
Credit : 4	External Marks	: 60

Objectives: To enable the learner

1. Become effective user of technology in education and research.
2. Integrate the emerging technology in educational process.
3. Get acquainted with e-learning and development of ICT.
4. Acquire the knowledge of communication skill with special reference to its elements, types, development and styles
5. Develop ability to apply theoretical knowledge gained through the course.

UNIT - I

12 hours

Computer application and E-Learning

1.1. Application of Computer:

- a) Information and Communication Technology (ICT): Definition, Meaning, Features, Trends.
- b) Integration of ICT in teaching and learning
- c) ICT applications: Using word processors, spread sheets, Power point slides in the classroom
- d) ICT for Research: On-line journals, e-books, Courseware, Tutorials, Technical reports, Theses and Dissertations.

1.2. E-Learning:

- a) E- learning: scope, trends, attributes, opportunities
- b) Pedagogical design for operation
- c) MOOC- development and operation
- d) E-learning - assessment and feedback mechanism e- portfolio.
- e) Management and implementation of e - learning
- f) Evaluation- impact of e-learning.

UNIT - II

12 hours

Communication and Interaction Methods

2.1. Communication:

- a) Definitions ,Elements of Communication: Sender, Message, Channel, Receiver, Feedback and Noise
- b) Types of Communication: Spoken and written; Non-verbal communication Intrapersonal, Interpersonal, Group and Mass communication
- c) Skills of communication: Listening, Speaking, Reading and writing
- d) Classroom communication and dynamics
- e) Lecture and lecture demonstration as communication

2.2. Interaction Methods:

- a) Interaction analysis, observation schedule and records.
- b) Bale's interaction process categories

- c) Flanders's system of interaction analysis
- d) Verbal interaction system
- e) Reciprocal category system
- f) Equivalent talk categories.

UNIT - III

12 hours

Education Psychology and Pedagogy Instructional Technology

3.1. **Psychology:** definition, Nature

3.2. **Educational psychology:**

- a) Definition, Nature, Scope.
- b) Teaching and learning: meaning, characteristics, effective teaching, concept of learning, comparison between teaching and learning

3.3. **Mental health-Frustration:** concept of adjustment, defence mechanism, mental hygiene.

3.4. **Pedagogy Instructional Technology:**

- a) Definition, Objectives and Types
- b) Difference between Teaching and Instruction

UNIT - IV

12 hours

Teaching – Learning Techniques

4.1. **Lecture Technique:**

- a) Steps, Planning of a Lecture, Delivery of a lecture
- b) Narration in tune with the nature of different disciplines
- c) Lecture with power point presentation
- d) Versatility of lecture technique
- e) Demonstration, Characteristics, Principles, Planning Implementation and Evaluation

4.2. **Teaching – Learning Techniques:**

- a) Team Teaching, Group discussion, Seminar, Workshop, Symposium and Panel Discussion
- b) Micro teaching, characteristic of micro teaching.
- c) Models of teaching: CAI, CMI and WBI 7

UNIT - V

12 hours

5.1. **Teaching Skills:**

- a) Definition, Meaning and Nature
- b) Types of Teaching skills: Skill of Set Induction, Skill of Stimulus Variation, Skill of Explaining, Skill of Probing Questions, Skill of Black Board writing and Skill of Closure
- c) Integration of Teaching Skills
- d) #Evaluation of Teaching Skills#

5.2. **Analysis of Teaching & Instructional Design:**

- a) The observational system for instructional analysis.
- b) The classification of behaviour, summarising behaviour and interpreting the institution.
- c) Training Psychological approach, cybernetic principles of teaching and learning Educational system analysis.

#.....# Self-Study portion

TEXT BOOK:

1. Bela Rani Sharma (2007), Curriculum Reforms and Teaching Methods, Sarup and sons, New Delhi.
2. Kumar K.I (2008) Educational Technology, New Age International Publishers, New Delhi.
3. Pandey S.K. (2005) Teaching Communication, Commonwealth Publishers, New Delhi.
4. Vedanayagam E.C.(1988) Teaching Technology for College Teachers, Striling Publishers Private Limited.

Unit-I-Text Book-1

Unit-II-Text Book-1,2

Unit-III-Text Book-3

Unit-IV-Text Book-3,4

Unit-V-Text Book-3,4

REFERENCES:

1. Don Skinner (2005), Teacher Training, Edinburgh University Press Ltd., Edinburgh
2. Information and Communication Technology in Education: A Curriculum for Schools and programme of Teacher development, Jonathan Anderson and Tom Van Weert, UNESCO, 2002
3. Mangal, S.K. (2002) Essential of Teaching – Learning and Information Technology, Tandon Publications, Ludhiana
4. Michael D. and William (2000), Integrating Technology into Teaching and Learning: Concepts and Applications, Prentice Hall, New York
5. Ram Babu A. and Dandapani S (2006) Microteaching (Vol.1&2) Neelakamal Publications, Hyderabad
6. Singh V.K. and Sudarshan K.N. (1996) Computer Education, Discovery Publishing Company, New York
7. Sharma R. A. (2006) Fundamentals of Educational Technology, Surya Publications, Meerut
8. Vanaja. M. and Rajasekar S. (2006) Computer Education, Neelkamal Publications, Hyderabad.

