

## COURSE PROFILE – (2018-2019 MPHIL FOOD AND NUTRITION)

<b>Paper</b>	<b>Paper Code</b>	<b>Title of the paper</b>	<b>Credits</b>	<b>CA</b>	<b>End Semester</b>	<b>Viva</b>	<b>Total</b>
1	13M18/RML	Research Methodology and Introduction to Teaching/Learning Process	5	40	60	-	100
2	13M18/APF	Advanced Paper in Foods and Nutrition	5	40	60	-	100
3	13M18/INT	Internal Paper on Dissertation*	5	40	60*	-	100
4	13M18/PRO	Dissertation	21	50	100	50	200
		<b>Total</b>	<b>36</b>				

\*Internal Valuation Only

## PAPER - 1

### RESEARCH METHODOLOGY AND INTRODUCTION TO TEACHING / LEARNING PROCESS

**CORE: 1**

**Teaching Hours: 75 hours**

**Paper Code: 13M18/RML**

**Credits: 5**

#### **OBJECTIVES:**

To enable students

- To make students aware of the principles and techniques involved in research methodology.
- To learn the concepts of linear programming
- To learn teaching and learning process

#### **COURSE OUTLINE:**

- UNIT I:** Formulation of a research problem: Research designs -meaning, principle and components  
Ethical importance of content, privacy and confidentiality in research;  
Guidelines for research on human subjects; Issue of academic fraud and plagiarisms; copyright, citations and acknowledgement, authorship and publications  
Design of experiments, principles of experimentations  
Sampling methods, different types of sampling designs, sampling errors, sampling bias  
Methods and tools of data collection: Observation, questionnaire, interview, checklist, rating scale, attitude scale, reliability and validity of tools. (15 HOURS)
- UNIT II:** Linear Programming - type of variables, solving problems, interpretation, use in field of Food & Nutrition. Data processing using the computer coding and classification, programming and analysis (15 HOURS)
- UNIT III:** Processing and analysis of data: Editing, coding, classification, tabulation, Parametric or standard tests, chi-square test; Analysis of variance and covariance; Non-parametric or distribution free tests; Uses of multivariate analysis techniques (concepts only) classification, methods - factor analysis and path analysis, cluster analysis; Handling of qualitative and quantitative data  
Report Writing: Significance, different steps in writing a report, Drawing inferences, evaluation. (15 HOURS)

**UNIT IV:** Methods of teaching/learning relevant to higher education: Objectives, advantages, limitations; Methods relating to different levels instructional, self-study, seminar, participatory method; Laboratory and project work, case study, field trips etc., Innovations in nutritional fields. Methods used in non-formal education, vocational training, adult education.  
(15 HOURS)

**UNIT V:** Organization, Planning and management of the classroom/field: Planning course work, practical work, field trips, seminar etc., Teacher - student relationship, Student interaction and participation.  
Evaluation methods - classroom / field; objectives and functions of evaluation, principles of evaluation; Tool for testing / evaluation: Internal assessment - teacher - made tests, objective type, short answer and essay questions, construction of questions and question bank, performance tests, observation technique, product evaluation, appraising personality traits.  
The marking and grading systems (15 HOURS)

## REFERENCES:

1. Singh, Y.K, *Fundamental of Research Methodology and Statistic*. New Age International (P) Ltd., Publishers. New Delhi, 2015
2. Kothari, C. and Garg, G, *Research methodology Methods and Techniques* 3<sup>rd</sup> edition, New Delhi: New Age International (P) Ltd, 2014
3. Gupta. S.P, *Statistical Methods*, S Chand & Sons., New Delhi, 2008
4. Saravanavel, P, *Research Methodology*, KitabMahal Agencies, New Delhi, 2005
5. Elhance .D.N, Veenaand and Agarwal .B.M, *Fundamental of statistics*,48<sup>th</sup>Edition, KitabMahal, Allahabad, 2005
6. Best JW and Kahn JV, *Research in Education*, Prentice Hall of India Pvt. Ltd., New Delhi, 1996
7. Koul L, *Methodology of Educational Research*, 3<sup>rd</sup> edition Vikas publishing House Pvt. Ltd ,New Delhi
8. William Giles Campbell, *Form and style in Thesis writing*, Houghton Mifflin Company, Boston.
9. Sadhu A.N and Singh A, *Research Methodology in Social Sciences*, Himalaya Publishing House, Mumbai,

## PAPER - II

### ADVANCED PAPER IN FOODS AND NUTRITION

**CORE: 2**

**Paper Code: 13M18/APF**

**Teaching Hours: 75 hours**

**Credits: 5**

#### **OBJECTIVES:**

To understand and appreciate the interrelationship between health and nutrition.  
To equip the students in the application of various nutrition techniques in pursuing Nutritional research.

#### **COURSE OUTLINE:**

##### **UNIT I: Nutrition and Immunity:**

Immunity - Review, Goals of immune modulation - phagocytosis, chemotaxis, antigen recognition, immune cell proliferation, maintenance of mucosal barrier; Modulation of inflammatory response; Nutrients with immuno modulating properties - Arginine, Glutamine, Omega 3 fatty acids, sulphur containing amino acids, nucleotides, ornithine, alpha ketoglutarate and taurine; Supplementation, beneficiary effects-Prebiotics Probiotics and symbiotics. (15 HOURS)

##### **UNIT II: Nutrition, Health and Disease:**

Assessment of nutritional status - current concepts and methods; National Nutrition Policy - Programmes in combating malnutrition in India; Nutrition and drug interaction; Nutrition and behaviour; Recent concepts of fats, protein, available and unavailable carbohydrate in combating non-communicable diseases; Role of antioxidants and phytochemicals, zoo chemicals & herbs. (15 HOURS)

##### **UNIT III: Techniques in Nutrition Research:**

Principles, procedure and applications of Electrophoresis, Chromatography, Colorimetry, Spectrophotometry, Fluorimetry, Atomic absorption spectrophotometry, Use of auto analyzer, Flame photometer Microbiological assay, in vitro studies, Radio isotope studies, Animal and Human experimentation, epidemiology – Cross sectional double blind studies (20 HOURS)

##### **UNIT IV: Food Safety, Adequacy and Food allergies:**

Recent developments in food processing and preservation; Post Harvest technology; Novel protein foods - Source, nutritive value and uses; naturally occurring food toxicants and chemical additives in food Classification of food allergens based on food groups and Nutritional intervention in food allergies. (15 HOURS)



**PERIODICALS:**

1. Journal of American Dietetic Association
2. American Journal of Clinical Nutrition
3. British Journal of Clinical Nutrition
4. Indian Journal of Nutrition and Dietetics
5. European Journal of Clinical Nutrition
6. Nutrition Today
7. Journal of Nutrition and Dietetics
8. Journal of enternal and parenteral nutrition

**WEBSITES AND e-LEARNING SOURCES:**

1. [www.eatright.org](http://www.eatright.org).
2. [www.ifcinfo.health.org](http://www.ifcinfo.health.org).
3. [www.nutrition.gov](http://www.nutrition.gov)
4. [www.diabetes.org](http://www.diabetes.org)
5. [www.americanheart.org](http://www.americanheart.org)

## **PAPER III**

### **INTERNAL PAPER ON DISSERTATION\***

**Paper Code: 13M18/INT**

**Credits: 5**

This paper should deal in depth, the contours of the research topic undertaken by the candidate with reference to:

Historic Background

Literature Survey

Designing of the Project

Procedures involved

Parameters and criteria for various measurements

Data Analysis

Interpretation

Inferences, conclusions and recommendations

\*Internal Valuation Only



**PAPER IV**  
**DISSERTATION**

**Paper Code: 13M18/PRO**

**Credits: 21**

Dissertation assessment is done based on the following criteria: (100 marks)

1. Originality
2. Literature Survey
3. Research Design
4. Data Collection & Methodology
5. Data Interpretation
6. Report Writing
7. Significant Conclusions/ Contribution to Community or existing research base

CA: (50 marks)

Viva voce: (50 marks)

**REFERENCES:**

1. Singh, Y.K, *Fundamental of Research Methodology and Statistic*. New Age International (P) Ltd., Publishers. New Delhi, 2015
2. Kothari, C. and Garg, G, *Research methodology Methods and Techniques* 3<sup>rd</sup> edition, New Delhi: New Age International (P) Ltd, 2014
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