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BPS INSTITUTE OF HIGHER LEARNING

COURSE CURRICULUM & SCHEME OF EXAMINATIONS w.e.f. 2013-14 and onwards.

PH.D. (FOOD AND NUTRITION)

S. No.	Code	Course Title	Hours per Week			Total Credits	Max Marks		
			L	T	P		Internal Marks	External Marks	Total Marks
		Theory Courses :							
1	FNL- 3101	Advances in nutrition Science	4	0		3	20	80	100
2	FNL -3103	Advances in community nutrition	4	0		3	20	80	100
3	FNL -3105	Advances in product development	4	0		3	20	80	100
4	FNL -3107	Quantitative techniques and computer application	4	0		3	20	80	100
5	FNL -3109	Research methodology	4	0		3	20	80	100
6	FNL -3111	Seminar	1	0		1	50	0	50
7	FNL -3113	Presentation on Current Topic	1	0		1	50	0	50
		Practical/ Lab Courses:							
8	FNP-3112	Advances in Community Nutrition			4	1	10	40	50
9	FNP -3113	Advances in Product Development			4	1	10	40	50
10	FNP -3114	Quantitative Techniques and Computer Application			4	1	10	40	50
		TOTAL	22	0	12	20	130	520	650

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ADVANCES IN NUTRITION SCIENCE

Total Credits:- 3
Total marks:- 100

COURSE CODE: FNL- 3101
L-T-P:3-0-0

THEORY MARKS:
External:-80
Internal:-20

COURSE OBJECTIVES:

- To gain knowledge regarding the advances in food additives and toxicants.
- To understand the chemical and physical changes which occur during the production, processing and storage of food and their application.
- Be familiar with concept of prebiotics and probiotics and advancement of essential fatty acids.

UNIT I

1. Advances in Carbohydrate metabolism, carbohydrate free diet and its metabolic consequences, Glycemic Index and Glucose load of food stuffs.
2. Role of Omega-3 and Omega-6 fatty acids in health.
3. Interrelation between nutrients
4. Detoxification
5. Inborn errors of Metabolism
6. Obesity and its Complications
7. Computer application in clinical nutrition

UNIT II

8. Food additives: definition and toxicology
    a. Intentional direct additives: nitrites, nitrates and n-nitroso compounds
    b. Indirect additives: multi contaminants studies, antimicrobial drugs, pesticides,
    c. Polycyclic aromatic hydrocarbon.
9. Naturally occurring toxicants and food contaminants.
10. Concept of Probiotics and Prebiotics.
11. Non-nutritive components of food: Nutraceuticals, Phytochemicals etc.
12. Food Biotechnology: definition and scope.
13. Concept of genetically modified foods.

REFERENCES:

1. Goldberg I. 1994. Functional foods: Designer foods, Pharma foods, Nutraceuticals. Springer.
2. Nestle M. 2003. Safe food: Bacteria, Biotechnology and bioterrorism. University of California press.
3. Winick. 1973. Nutrition &Development ,univ. of calombia.
4. Ecames. 1972. Biology of Nutrition , Palaniuma press

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18/8/15

5. Akoh CC and MinDB. 1998. Food lipids- chemistry, Nutrition and Biotechnology, Marcel Dekker.

Note: Instructions for examiner

Total nine questions will be set

- Question no. 1 will be compulsory consisting of 5-10 short type questions covering entire syllabus.
- The remaining eight questions will be set from unit I and II, four questions from each unit.
- The candidate will be required to attempt five questions. Question number I will be compulsory, remaining four questions will be attempted by selecting two questions from each unit.

18/8/15 18/8/15

ADVANCES IN COMMUNITY NUTRITION

COURSE CODE: FNL- 3103 **Total credits:- 3**

L-T-P: 3-0-1 **Total marks:- 100**

THEORY MARKS:
External:-80
Internal:-20

Practical marks:
External:-40
Internal:-10

COURESE OBJECTIVES:

- To understand the problems of community nutrition at different levels.
- Orient the students with all the important state – of –art methodology applied in nutrition assessment and surveillance of human groups.
- Be familiar with various programmes which can be undertaken to prevent and control nutritional problems at regional and national levels.
- Be able to plan, implement, monitor and evaluate nutritional programmes.

UNIT 1

1. Assessment of nutritional status of the community ; current methodologies of assessment of nutritional status , their interpretation and comparative application of the Following ;
   i. Food consumption
   ii. Anthropometry
   iii. Clinical and laboratory
2. Nutrition in dental health.
3. Nutritional programs at national and international level.

UNIT 2

4. Improvement in nutrition in a community; Food production and conservation Poverty, nutrition and family planning, novel protein sources.
5. Community media and method in nutrition education.
6. National Nutrition Policy.
7. Food safety and security.

REFERENCES:

1. Bamji M.S., PralhadRao, N and Vinodini Reddy (Ed).1999. Text book of Human Nutrition Oxford and IBH publishing Co. Pvt. Ltd. New Delhi.
2. Davidson .S. Passmore, R. Brock – J.F.&TURSWELL. 1978. Human Nutrition &dieteties
3. Shills R.S. 2009. Modern Nutrition in Health & disease by Goodhearth
4. Recommended dietary allowance for Indians - I.C.M.R.2010
5. Spark A. 2007. Nutrition in public health: Principles, policies and Practice. CRC Press.
6. Shulkla PK. 1982. Nutritional Problems of India. Prentice Hall.

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7. Mclaren DS. 1983.nutrition in the community. John Wiley.
8. Jeannette B Endres. 1990. Community Nutrition, Challenges and Opportunities. Merill
9. Derrick B. Jelliffe and E. F. Patrice Jelliffe. 1990.Community Nutritional Assessment,with Special Reference to Less Technically Developed CountriesFirst Edition. oxford university press
10. Gopaldas T &seshadari S. 1987. *Nutririon Monitoring and assessment.* Oxford university press.

PRACTICAL

1. Development of teaching aids for Nutrition Education .
2. Development of low cost recipes for infants, pre-schoolars, school going children and Adolescents.
3. Development of low cost recipes for pregnant and lactating women.

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IF Bl 50/40
B.O. 50/40 35

Hb 40 - 5

Lipid profile - 150

ADVANCES IN PRODUCT DEVELOPMENT

Course Code: FNL-3105 **Total Credits:-3**
L-T-P: 2-0-1

Total Marks:-100

Theory Marks:
External:-80
Internal:-20

Practical Marks:
External:-40
Internal:-10

Course Objective:

- To Understand and know the various aspects of food product development.
- To develop the potential for food entrepreneurship.
- Gain knowledge about various packaging materials and importance of packing.
- Provide adequate theoretical background and understanding about sensory evaluation of food.

Unit1

1. Basic principles of food product development ;
2. Sensory properties of foods and their role in product Development.
3. Formulation and evaluation of recipes for General and therapeutic use, their nutritive value and costing
4. Objective and subjective evaluation of food; selection and training of judges, Development of questionnaire, score cards and analysis of data.
5. Anti-nutritional components in food and its removal through processing.

Unit2

6. Food Packaging:Objectives and types of packaging
7. Basic packaging material and their protective quality
8. Effect of packing on nutritive value of foods
9. Advance trends in food packaging.
10. Food product labelling& nutrition labelling.
11. Food standards and Quality control
12. New products in food science industry and food ingredient industry

References

1. SethiM. Food Science experiments and applications CBS Publishers & Distributors
2. BIS 6273. 1972. Guide for Sensory Evaluation of Foods optimum Requirement Part –I Bureau, of Indian Standards, ManateBhavan, New Delhi
3. Fuller G.W. 1994. New Food Product Development: From Concept of Market Place. CRPress, New York.

18/8/15

4. Matz SA. 2004. Formulating and processing dietetic foods. CHIPS Publ.
5. Goldberg I. 1994. Functional foods: Designer foods, Pharma foods, Nutraceuticals. Springer.
6. Altschul Aaron M. 1992. Low calorie foods. Marcel Dekker.
7. R P Srivastava, Sanjeev Kumar. 1994. Fruit & Vegetable Preservation Principles and Practices 6thEdition Reprint Edition, ,idbc publisher

PRACTICAL

1. Market and consumer survey to identify new products
2. Product development from different food groups and their sensory evaluation by different methods.
3. Observation of working of any food production unit for minimum 5-7 days

Note: Instructions for Examiner:

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18/8/15

QUANTITATIVE TECHNIQUES & COMPUTER APPLICATION

COURSE CODE:
L-T-P: 2-0-1

Total Credits: -3
Total marks:- 100

Theory marks:
External:-80
Internal:-20

Practical marks:
External:40
Internal:10

COURSE OBJECTIVES:

- To understand the role of computer application in research
- To acquire advance computer operation skills with SPSS
- To understand the use of MS. Excel MS Word in statistics and preparation of p programs

UNIT 1

1. Introduction to SPSS and Excel: types of variables.
2. Master chart, data entry. in Excel & Graph in Excel
3. Importing files from other software's: insert variable insert cases, values lables, sort, select cases, transpose data.
4. Data editing, data entry, data screening, transformation.
5. MS Power point.

UNIT 2

6. Introduction to nutriguide programme.
7. Formation of nutrition related software.
8. Statistical calculation using excel programme like determination of measure of central tendency, dispersion and t-test.
9. Internet searching for review of literature, Mail, Browsers, Search engines.

Practical:

1. Graphical presentation (using data on quantitative variables like height, weight, Haemoglobin level etc.), make at least five types of graphs,
2. Performing statistical calculations using excel programme like determination of measures of centeral tendency, dispersion and t- test.
3. Computer aided nutrition, Computer aided physical fitness, Body Mass analysis with computer.
4. Use of CD and pen drive for data transfer (students will submit a soft copy and a hard copy of power presentation and graphs)
5. Use of internet for data searching

REFERENCES:

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18/8/17

1. Singh GN. Essentials of computer and network technology ,khanna books publishing co. New Delhi
2. Donald Sanders: computer today, McGraw –hill publishers
3 Davis : Introduction to computer, McGraw –hill publishers
4. P.K Sinha and PritiSinha; computer fundamentals
5 Gupta, S.P. 1972. Statistical Method, Sultan Chand & Sons,.
6. George A. Forguson 1965. Statistical Analysis in psychology and education . Mc Graw hill book co.
7. Cook T.D and Relchardt, C.S. 1979. Qualitative and Quantitative Method in evaluation research sage publication .
8. Morgan,, D 1980.successful focus group .sage publication.
9. Mienert, C.L. 1986. Clinical trials: designs, conduct and analysis. Oxford, new York.

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- The remaining eight questions will be set from unit I and II, four question from each unit.
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18/8/15

RESEARCH METHODOLOGY

COURSE CODE:
L-T-P:3-0-0

Total Credits:- 3
Total Marks:- 100

Theory Marks:
External:-80
Internal: -20

COURESE OBJECTIVES:

- To understand the significance of research methodology in home science research
- To understand the types, tools and method of research
- To understand and apply the appropriate techniques for the measurement scale and design
- To understand data analysis, editing, coding, classification, tabulation, analysis, graphical presentation of data, interpretation of result

UNIT 1

1. Research: meaning, types and significance
2. Characteristics of good research
3. Identification and formulation of research problem, setting research objective
4. Hypothesis: meaning, type need and formulation
5. Synopsis: meaning need the formulation of synopsis, preparation of a sample synopsis and its presentation

UNIT2

6. Review of literature.
7. Sampling : meaning and importance of research ,types.
8. Method of data collection: interview, observation, questionnaire rating scale.
10. Data analysis: editing, coding, classification, tabulation, analysis, graphical presentation of data, interpretation of results.
11. Report writing: format of research, final presentation of the research report, bibliography, footnotes and endnotes.

REFERENCES:

1. Scrimshaw, N.S. and Gleason, G.R. (1992) Rapid Assessment Procedures. Qualitative Methodologies for Planning and Evaluation of Health- related Programmes. International Nutrition Foundation for Developing Countries, Boston.
2. Patton , M.Q. (1980): Qualitative Evaluation Method. Sage Publications.
3. Morgan, D. (1993): Sucessful Focus Groups.Sage Publications.
4. Mienert, C.L. (1986) Clinical Trials: Designs, Conduct and Analysis. Oxford, New York.
5. Ranjit Singh (2005) Research Methodology: A Step by Step Guide for Beginners 2nd Edition . Pearson

18/8/15

18/8/15

Research Methodology - G.C. Ramamurthy

Note : Instructions for examiner.

Total nine questions will be set

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SEMINAR

COURSE CODE: FNL- 3111 **Total Credits:-1**
L-T-P:1-0-0 **Total marks:- 50**

THEORY MARKS:
External:- 0
Internal:- 50

COURSE OBJECTIVES:
To develop presentation and compilation skills in the studentsfor collection and insemination of information and knowledge related to their field of interest in the subject.

PRESENTATION ON CURRENT TOPIC

COURSE CODE: FNL- 3113 **Total Credits:-1**
L-T-P:1-0-0 **Total marks:- 50**

THEORY MARKS:
External:- 0
Internal:-50

COURSE OBJECTIVES:
To make students aware about the current trends of Research and Nutrition in their field of specialization.

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