

Master of Science In Food and Nutrition [M.Sc. (DFSM)]

PROGRAMME GUIDE

Please keep this Programme Guide safely till you complete the programme.
You will need to consult it while working on the programme.

The programme is not approved by the National Commission for Allied and Healthcare Professions (NCAHP), which now governs the registration of individuals in this profession. Applicants are advised to go through the NCAHP Act (2021) for understanding the details of the professions with respect to this programme and to take an informed decision.



**School of Continuing Education
Indira Gandhi National Open University
New Delhi -110068**

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Mr. Rajiv Girdhar

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office at Maidan Garhi, New Delhi- 110 068 or the official website of IGNOU at www.ignou.ac.in

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The degrees and diplomas of IGNOU are recognized and have the same status as those of any other Central or State University in India

<p style="text-align: center;">ASSOCIATION OF INDIAN UNIVERSITIES AIU HOUSE, 16 KOTLA MARG, NEW DELHI-110002</p> <p style="text-align: right;">January 14, 1994</p> <p>The Registrar Member Universi- ties</p> <p>Sub: Recognition in Degrees/ Diplomas of Open Universities</p> <p>Dear Sir,</p> <p>The Standing Committee at its 237th meeting held at Utkal University and the 68th Annual Session of the AIU and in December, 1993 at the University of Delhi have decided in prin- ciple that the Degrees of the Open Universi- ties be recognized in terms of the following reso- lutions.</p> <p>Resolved that the examinations of the Univer- sity should be recognized by another on a recip- rocal basis, provided that the entrance qualifica- tion, duration of course and the general standard of attainment are similar to those prescribed by the recognized university.”</p> <p>The decision is brought to the notice of the Universities for favour of appropriate action in the matter. The additional information, if required in this behalf, may kindly be obtained from the Registrar of the Universities direct.</p> <p>Thanking you,</p> <p style="text-align: right;">Yours faithfully, Sd/-</p> <p style="text-align: right;">(K.C.Kalra) Joint Secretary</p>	<p style="text-align: center;">UNIVERSITY GRANTS COMISSION BAHADUR SHAH SAFAR MARG, New Delhi-110002</p> <p>No.F. 1-8/92(CPP)</p> <p>February, 1992</p> <p>The Vice-Chancellor/ Director's of all the Indian Universities/ Deemed Univer- sities/Institutions of National importance</p> <p>Sub: Recognition of Degrees/Diplomas Awarded by Indira Gandhi National Open University, New Delhi</p> <p>I am directed to say that Indira Gandhi National Open University New Delhi has been established by Sub-Section (2) of Section (1) of the IGNOU Act, 1985 (50 of 1985) vide Notification No. F.13- 12/85- Desk(U) dated 19-09-1985 issued by the Govt. of India. Ministry of Human Resource De- velopment (Department of Education), New Delhi and is competent to award its own degrees/diploma. The Certificates, Diplomas and Degrees awarded by Indira Gandhi National Open University are to be treated equivalent to the corresponding awards of the Universities in the country.</p> <p style="text-align: right;">Yours faithfully, Sd/-</p> <p style="text-align: right;">(Gurcharan Singh) Under Secretary</p>
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1. THE UNIVERSITY

Indira Gandhi National Open University was established in September, 1985 by an Act of Parliament, with a view to democratize education, so that it covers large segments of population, vocations and professions. The primary emphasis is on innovation, flexibility and cost-effectiveness. Thus, it is a University with a difference.

The major objectives of the University are:

- to promote the educational well-being of the community,
- to democratize higher education by providing easy access to all those who desire to improve their qualifications, skills and competence by taking education to the doorsteps of people living even in remote and rural areas,
- to disseminate learning and knowledge through an innovative multi-media teaching-learning system,
- to provide high quality education at all levels,
- to coordinate and determine the standards of Distance Education and Open University Systems throughout the country.

The salient features of this system of education are:

- study according to your own pace and convenience,
- study at your own chosen place,
- flexibility in choosing courses and combination of courses from a wide range of disciplines/ subjects, and
- use of modern and appropriate educational and communication technology.

Student support services are provided by the University through a network of study centres scattered all over the country. Study Centres are the actual focal points to enable you to receive regular information and learning support. Each Study Centre provides you with library, audio and video facilities to further help you in the learning process. Senior and experienced academics are engaged in face-to-face counselling at study centres. The study centres are generally located in existing educational institutions and normally function on all holidays and Sundays and also in the evenings on working days. Each study centre is supervised by a Coordinator. Regional Centres have been set up in different parts of the country to coordinate the functioning of study centres.

2. THE SCHOOL OF CONTINUING EDUCATION

It is widely realized that in the active career of every individual, there is many-fold increase in knowledge, particularly in the professional and vocational spheres. This has forced a paradigm shift in the continuous professional and training needs and life long learning. To meet these emerging trends, the university established the School of Continuing Education. The School keeps in mind Sustainable Development with focus on the changing scenario of the country, amelioration of rural poverty or development of women and children. The School has addressed several areas of concern such as Rural Development, Women's Empowerment, Nutrition, Child Development, Disability, HIV and Family Education, Youth in Development Work, Journalism and Mass Communication and Social Work.

3. WHY THIS PROGRAMME OF STUDY IN THE AREA OF FOOD AND NUTRITION?

The M.Sc. Programme (Food and Nutrition) has been designed for professionals and students interested in getting an in-depth knowledge and looking for expertise in the area of nutrition, health and wellbeing. The applicants could be healthcare practitioners, dietitians/counselors, health administrators, paramedical personnel, pharmaceutical functionaries, food and drink industry personnel, government and non-government organization functionaries, who are involved with

nutritional care and well being of the community at large. The programme will offer unique opportunity of higher education to learners to enrich their working lives by entering into the market and/or starting their own food service unit, leading to entrepreneurship. The programme also focuses on school/college teachers, personnel working in the areas of food safety and/or in the wellness industry who desire to upgrade their knowledge and develop productive skills to enhance their career progression and employability. The special feature of the programme is that it has a provision of exit point for learners in the form of Post Graduate Diploma after having successfully completed 30 credit course work along with internship programme.

The Master's programme in the area of Food and Nutrition assumes importance in the context of the following:

- to provide access to high quality education to all those interested in food and nutrition
- to avoid frustration due to under-employment or unemployment in a large section of young public health functionaries.

Further, there are a large number of people who have been interested in nutrition and their work may have nutritional implications. They may already have a professional knowledge of a part of the subject, but little or none of some of the other aspects. Such people may be doctors, para-medical personnel, food scientists and manufacturers, educationists and administrators. The Master's programme will help them increase the range of their knowledge and broaden their view point. Conventional universities have little to offer to them.

4. SALIENT FEATURES OF M.Sc. (DFSM) PROGRAMME

The programme details are presented in this section.

4.1 What is so Unique About the M.Sc. (DFSM) Programme?

The Masters programme in Food and Nutrition offered by IGNOU is unique and innovative in many respects. The salient features of this programme are:

- Both male and female students can seek admission.
- Every student of M.Sc.(DFSM) is placed at a programme study centre close to his/her residence to attend both the theory and practical sessions.
- Student can study at his/her own pace and convenience over a period of 2 to 4 years.
- Student can study at his/her own chosen place.
- Indigenously prepared self-instructional print materials are provided to students.
- Print materials are supported with audio and video programmes.
- Multi-media programme package is available in English.
- Students can exit from the programme after one year having completed 30 credits of course work plus 16 credit internship with a Post Graduate Diploma

4.2 Who is this Programme Meant For?

The programme is targeted at:

- individuals looking for expertise in nutrition. These could be food scientists, technologists, food administrators, health practitioners (medical, para-medical personnel)etc.
- individuals, government and non-government organization functionaries and policy planners who are involved in Institution food administration and nutritional care and well being of the community at large.
- graduates or the equivalent from a variety of backgrounds for example, health care, pharmaceutical, food and drink industries, biochemistry, nutrition and dietetics.
- people interested in setting up their own food service units leading to entrepreneurship

- workers, supervisors, managers employed in food service units.
- school/college teachers wanting to go for higher education and to enrich their working lives
- personnel working in the areas of food safety and/or in the wellness industry who desire to upgrade their knowledge and develop productive skills to enhance their career progression and employability.

4.3 Who is Eligible for Admission to the M.Sc. (DFSM) Programme?

In keeping with the policy of ‘openness’ and ‘flexibility’, the admission to the M.Sc. (DFSM) course is open to graduates from nutrition, science and health background, even if they have not studied nutrition at the graduate level. The eligibility criteria include:

B.Sc Home Science with specialization in Food and Nutrition and/or Dietetics and Clinical Nutrition

Or

PG Diploma in Dietetics and Public Health Nutrition (with BSc Degree in Food and Nutrition and/or Home Science)

Or

B.Sc. (Hons.) in any of the following backgrounds: Home Science/ Food Science and Technology / Zoology / Microbiology /Biochemistry / Pharmacy along with Diploma in Nutrition and Health Education (DNHE) or the Course “Nutrition for the Community” (CNCC-1) or Certificate in Food and Nutrition (CFN) (Simultaneous admission for CFN/CNCC also permitted)

Or

MBBS / BHMS along with Diploma in Nutrition and Health Education (DNHE) or the Course “Nutrition for the Community” (CNCC-1) or Certificate in Food and Nutrition (CFN) offered by IGNOU to be eligible for admission to the M.Sc. (DFSM) programme (Simultaneous admission for CFN/CNCC also permitted)

There is no admission test for seeking admission.

Admission Portal for MSCDFSM: <https://ignouadmission.samarth.edu.in/>

Student Portal (after admission): <https://ignou.samarth.edu.in/>

All students are advised to register on the Student Portal after confirmation of their admission and create their own Student Account

4.4 What are the Programme Objectives?

The main objectives of the programme are to:

- provide comprehensive and essential practical guidance on all aspects of nutrition for the promotion of health and management of diseases
- develop a knowledge base in key areas of nutrition and food service management such as therapeutic diets, quantity cooking, institution food administration, public nutrition, nutrition epidemiology, biochemistry, food microbiology and physiology
- impart necessary expertise to enable learners to function as diet counsellors and nutrition and health communicators
- provide practical, field level experience in Institutional food administration
- cater to the needs of persons employed in government and non-government institutions engaged in providing health care and food service, and
- equip individuals to start their own food service unit, leading to entrepreneurship.

4.5 Medium of Instruction

The M.Sc. (DFSM) programme is available in English medium only. Printed course-material and assignments are in English medium. You have to submit the assignments and attempt the term-end examination in English language. Audio-video programmes and counselling may be provided in English and Hindi medium.

4.6 The Programme Structure

M.Sc. (DFSM) is a multimedia package which includes print material and audio-visual material. The programme is multidisciplinary in nature. It draws knowledge from disciplines such as biochemistry, physiology, microbiology, sociology, biostatistics, food science, management etc. In view of the above objectives and the nature of the programme, the courses so designed will help the learners:

- gain knowledge
- develop critical abilities
- offer scientific opinion on popular nutrition and other related issues and controversies – acquire a basic grounding in research techniques
- train and develop as a diet counsellor and nutrition/health communicator
- develop as institution food administrator or food service managers, and
- develop entrepreneurship skills.

The duration of the M.Sc.(DFSM) programme is of two years, and starts from the July session of a calendar year. In IGNOU parlance, the study hours are measured in credit system. One credit is equivalent to 30 learning hours. To successfully complete the M.Sc. (DFSM) programme, you will have to earn 72 credits (equivalent to 1920 study hours) over a period of 2-4 years depending on your convenience. However, you will not be allowed to earn more than 30-32 credits in a year.

The pool of courses constituting the Master's and the Post Graduate Diploma programme along with the credit weightage includes:

Course Code		Title of the Course	Credit Weightage	
			Theory	Practicals
MFN-001		Applied Physiology	4	-
MFN-002	MFNL-002	Nutritional Biochemistry	2	2
MFN-003	MFNL-003	Food Microbiology and Safety	2	2
MFN-004	MFNL-004	Advance Nutrition	4	2
MFN-005	MFNL-005	Clinical and Therapeutic Nutrition	4	2
MFN-006	MFNL-006	Public Nutrition	4	2
MFN-007	MFNL-007	Entrepreneurship and Food Service Management	4	2
MFN-008	MFNL-008	Principles of Food Science	2	2
MFN-009		Research Methods and Biostatistics	6	-
MFN-010		Understanding Computer Applications	2	-
	MFNP-011	Internship Programme		16*
	MFNP-012	Dissertation		8
			Total= 72 Credits	

*Credit transfer is permissible for PGDDPN 16 credits.

For M.Sc. (DFSM) Programme:

1st Year Course: MFN-001, MFN-002, MFNL-002, MFN-003, MFNL-003, MFN-006, MFNL-006, MFN-008, MFNL-008 and MFN-010.

2nd year Course: MFN-004, MFNL-004, MFN-005, MFNL-005, MFN-007, MFNL-007, MFN-009, MFNP-011 and MFNP-012.

For PGDDPN Programme:

Course: MFN-001, MFN-002, MFN-003, MFN-004, MFN-005, MFNL-005, MFN-006, MFNL-006, MFN-007, MFNL-007 and MFNP-011.

4.7 The Programme Package

This programme package in distance education mode is developed with the help of available technology commonly known as multi-media package. The package for the M.Sc.(DFSM) programme consists of print material in the form of course booklets/practical manuals and the audio video materials. Besides these, there is arrangement for teleconferences and contact sessions at programme study centres.

The print material consists of 10 theory booklets, 7 practical manuals and one programme guide. Each course booklet consists of 12-18 chapters called units. Usually each course represents 4 to 6 credits (2-4 for theory plus 2 for practical). The practical manuals are meant for guidance for practical. The dissertation and internship are of 8 credits and 16 credits, respectively

Despatch of Study Material

All the study material will be despatched in one lot. The despatch will be made within 6-8 weeks of the last date of admission. Along with the study material you will also receive Programme Guide. If anything is missing, or if you do not get material in time write to Concerned Regional Director of IGNOU.

For PGDDPN

Please note, those students wanting to exit the M.Sc. (DFSM) programme after completing 30 credit of course work and 16 credit (3 months) of internship with a Post Graduate Diploma in Dietetics and Public Nutrition (PGDDPN) will have to apply in this regard to Registrar (SED) with an undertaking to this effect. Such students thereafter will not be permitted to continue the programme further to acquire M.Sc.(DFSM).

4.8 Know the Syllabi of Your Programme

The pools of courses which constitute the Master's programme along with the Units included in each course include:

Applied Physiology (MFN-001) – 4 Credits

Unit 1	:	Introduction to Physiology
Unit 2	:	Cell and Blood
Unit 3	:	The Immune System
Unit 4	:	Cardiovascular System
Unit 5	:	Respiration
Unit 6	:	Physiology of Gastrointestinal System
Unit 7	:	Physiology of Renal System

Unit 8	:	Maintenance of Body Homeostasis
Unit 9	:	Nervous System
Unit 10	:	Special Senses
Unit 11	:	Physiology of the Endocrine System
Unit 12	:	The Reproductive System

Nutritional Biochemistry (MFN-002) – 4 Credits

Unit 1	:	Carbohydrates
Unit 2	:	Lipids and Proteins
Unit 3	:	Vitamins
Unit 4	:	Enzymes and Coenzymes
Unit 5	:	Digestion, absorption and transport of Carbohydrates, Lipid and Proteins
Unit 6	:	Carbohydrate Metabolism
Unit 7	:	Lipid Metabolism
Unit 8	:	Protein and Nucleic Acid Metabolism
Unit 9	:	Antioxidants
Unit 10	:	Vitamins and Minerals
Unit 11	:	Hormones
Unit 12	:	Inborn Errors of Metabolism

Practical manual (MFNL-002)

Food Microbiology and Safety (MFN-003) – 4 Credits

Unit 1	:	Microbiology of Foods
Unit 2	:	Food Safety – Basic Concept
Unit 3	:	Occurrence and Growth of Microorganisms in Foods
Unit 4	:	Food Spoilage
Unit 5	:	Food Hazards of Microbial Origin
Unit 6	:	Food Contaminants
Unit 7	:	Food Additives
Unit 8	:	Food Adulteration
Unit 9	:	Food Safety in Food Service Establishment and Other Food Areas
Unit 10	:	Hygiene and Sanitation in Food Service Establishments
Unit 11	:	Food Packaging
Unit 12	:	Risk Analysis
Unit 13	:	HACCP – A Food Safety Assurance System
Unit 14	:	Food Regulations – Standards and Quality Control

Practical manual (MFNL-003)

Advance Nutrition (MFN-004) – 6 Credits

Unit 1	:	Understanding Nutrition
Unit 2	:	Energy
Unit 3	:	Carbohydrates
Unit 4	:	Proteins
Unit 5	:	Lipids
Unit 6	:	Water
Unit 7	:	Vitamins (Fat Soluble) - Vitamin A, D, E and K.
Unit 8	:	Vitamins (Water Soluble) - Vitamin B complex, C.
Unit 9	:	Minerals (Macrominerals) - Calcium, phosphorus, magnesium, sodium, potassium and chloride.
Unit 10	:	Minerals (Microminerals) - (Copper, zinc, iodine, fluoride, manganese, selenium and chromium)
Unit 11	:	Food Components Other than Essential Nutrients
Unit 12	:	Meal Planning and Balanced Diets for Adults
Unit 13	:	Pregnant and Lactating Women

Unit 14	:	Infants and Preschool Children
Unit 15	:	Older Children and Adolescents
Unit 16	:	The Elderly
Unit 17	:	Sports Nutrition
Unit 18	:	Nutritional Requirements for Special Conditions
Unit 19	:	Nutritional Regulation of Gene Expression

Practical manual (MFNL-004)

Clinical and Therapeutic Nutrition (MFN-005) – 6 Credits

Unit 1	:	Introduction to Diet Therapy and Therapeutic Nutrition
Unit 2	:	Adaptations of Therapeutic Diets
Unit 3	:	Nutritional Management of Fevers and Infections
Unit 4	:	Nutrition in Critical Care
Unit 5	:	Nutritional Management of Patient with Metabolic stress - Burns, Trauma, Sepsis and Surgery
Unit 6	:	Nutritional Management of Food Allergies and Food Intolerance
Unit 7	:	Nutrition, Diet and Cancer
Unit 8	:	Nutrition Care for Weight Management
Unit 9	:	Nutritional Management of Cardiovascular Diseases
Unit 10	:	Nutritional Management of Metabolic Diseases
Unit 11	:	Nutritional Management of Gastrointestinal Tract Disorders
Unit 12	:	Nutritional Management in Pancreatic, Gall bladder and Liver Diseases
Unit 13	:	Nutritional Management of Renal Disease
Unit 14	:	Nutritional Management of Neurological Disorders
Unit 15	:	Paediatric and Geriatric Nutrition– Special Considerations

Practical manual (MFNL-005)

Public Nutrition (MFN-006) – 6 Credits

Unit 1	:	Concept of Public Nutrition
Unit 2	:	Public Nutrition: Multidisciplinary Concept
Unit 3	:	Nutritional Problems -I
Unit 4	:	Nutritional Problems -II
Unit 5	:	Public Nutrition: Health Economics and Economics of Malnutrition
Unit 6	:	Population Dynamics
Unit 7	:	Assessment of Nutritional Status in Community Setting-I
Unit 8	:	Assessment of Nutritional Status in Community Setting -II
Unit 9	:	Nutrition Monitoring and Surveillance
Unit 10	:	National Nutrition Policy
Unit 11	:	Strategies to Combating Public Nutrition Problems -I
Unit 12	:	Strategies to Combating Public Nutrition Problems -II
Unit 13	:	Nutrition Programmes
Unit 14	:	Programme Management and Administration
Unit 15	:	Case Studies
Unit 16	:	Conceptualization and the Process of Nutrition Education
Unit 17	:	Nutrition Education Programmes: Formulation
Unit 18	:	Nutrition Education Programmes: Implementation
Unit 19	:	Nutrition Education Programmes: Evaluation

Practical manual (MFNL-006)

Entrepreneurship and Food Service Management (MFN-007) – 6 Credits

Unit 1	:	History and Development of Food Service System
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Unit 2	:	Planning a Food Service Unit
Unit 3	:	Setting up a Food Service Unit
Unit 4	:	Entrepreneurship and Food Service Management
Unit 5	:	Menu Planning: Focal Point of all Activities in Food Service Establishment
Unit 6	:	Food Purchasing and Storage
Unit 7	:	Quantity Food Production -Planning and Control
Unit 8	:	Quantity Food Production -Kitchen Production
Unit 9	:	Food Management: Records and Controls
Unit 10	:	Delivery and Service- Goals and Issues
Unit 11	:	Delivery and Service: Styles
Unit 12	:	Delivery and Service in Different Systems
Unit 13	:	Administrative Leadership
Unit 14	:	Staff Planning and Management
Unit 15	:	Personnel Functions: Work Productivity
Unit 16	:	Plant and Equipment Maintenance
Unit 17	:	Plant - Sanitation and Safety
Unit 18	:	Issues in Food and Worker Safety and Security

Practical manual (MFNL-007)

Principles of Food Science (MFN-008) – 4 Credits

Unit 1	:	Introduction to Food Science and Simple Sugars
Unit 2	:	Food Polysaccharides and their Applications
Unit 3	:	Lipids
Unit 4	:	Proteins
Unit 5	:	Vitamins and Minerals
Unit 6	:	Enzymes and Pigments
Unit 7	:	Sols, Gels and Emulsions
Unit 8	:	Properties of Food
Unit 9	:	Chemical, Physical and Nutritional Alterations Occurring in Foods During Processing and Storage
Unit 10	:	Introduction to Food Processing
Unit 11	:	Methods of Food Processing -I
Unit 12	:	Methods of Food Processing - II
Unit 13	:	Pre and Primary Processing – Some Basic Concepts
Unit 14	:	Product Development and Evaluation

Practical manual (MFNL-008)

Research Methods and Biostatistics (MFN-009) – 6 Credits

Unit 1	:	Basic Concepts
Unit 2	:	Formulation of Research Problem
Unit 3	:	Design Strategies in Research -Descriptive Studies
Unit 4	:	Design Strategies in Research-Analytic Studies I
Unit 5	:	Design Strategies in Research -Analytic Studies II
Unit 6	:	Project Proposal
Unit 7	:	Data Collection
Unit 8	:	Data Collection: Tools and Techniques-I
Unit 9	:	Data Collection: Tools and techniques-II
Unit 10	:	Presentation and Summarization of Data-I
Unit 11	:	Presentation and Summarization of Data-II
Unit 12	:	Measures of Disease Frequency and Association
Unit 13	:	Reference Values and Validity of Diagnostic Tests
Unit 14	:	Hypothesis Testing -I
Unit 15	:	Report Writing
Unit 16	:	Research Studies in Health, Nutrition

Understanding Computer Applications (MFN-010) – 2 Credits

Unit 1	:	Information & Communication Technologies – An Introduction
Unit 2	:	Introduction to Computers
Unit 3	:	Windows Interface
Unit 4	:	Windows Explorer & Applications
Unit 5	:	Introduction to Internet
Unit 6	:	Introduction to MS Word
Unit 7	:	Formatting Documents
Unit 8	:	Desktop Publishing Features
Unit 9	:	Advanced Features in Word
Unit 10	:	Introduction to Microsoft PowerPoint
Unit 11	:	Advanced Features of Microsoft PowerPoint
Unit 12	:	Introduction to Excel
Unit 13	:	Computer Maintenance and Troubleshooting
Unit 14	:	Ergonomics

Internship (MFNP - 011) Dissertation (MFNP- 012)

5. FEE STRUCTURE AND SCHEDULE OF PAYMENT

Fee for the programme is to be paid year-wise. In the first year the fees is Rs. 17,500/- /- plus Registration fee of Rs.300/- and in the second year it is Rs. 17,500/-. The fee should be paid along with the filled in application form. In the 2nd year also the fees is to be paid as per schedule without waiting for any communication from the University. The Programme fee should be paid along with the filled in application form online at <https://ignouadmission.samarth.edu.in/>

Timely payment of programme fee is the responsibility of the student. In case you fail to remit the fee as per above schedule you will have to wait for next cycle of admission after a year.

Student Portal (after admission): <https://ignou.samarth.edu.in/>

All students are advised to register on the Student Portal after confirmation of their admission and create their own Student Account

6. SCHEME OF STUDY

For convenience of study, the whole duration of theory and practical sessions are divided. The counselling schedule for theory shall be asunder:

- For each 2 credit theory course (see the list of courses given above) 5-6 counselling sessions of 2 1/2 hour (two and a half hour) each,
- For 4 credit theory course 8 counselling sessions of 2 1/2 hour (two and a half hour) each, and
- For 6 credit theory course 8 counselling sessions of 2 1/2 hour (two and a half hour) each have been planned at the programme study centres.

For the practical (2 credit course) a total of 15 sessions have been scheduled. 14 sessions of 4 hour each should be organized for each 2 credit practical course (see the list of courses above). The practical shall be conducted over one week (7 working days) period consisting of two 4 hour sessions (total 14 sessions) each day for 7 days. The 15th Session is scheduled for the practical examination (6 hours).

Duration of internship for three months, in the Dietetic Department of a recognized hospital/institution, for the award of M.Sc. (DFSM) degree is compulsory. The recognized institution may be from Delhi, Mumbai, Kolkata, Chennai, Chandigarh, Ludhiana, Hyderabad, Bangalore etc. A list of dietetic departments of recognized hospital/institution where the internship can be undertaken is given in

MFNP-011 (Internship).

The dissertation shall be carried out under the supervision of the counselor /guide appointed to each learner by the programme incharge/coordinator at the respective programme study centre. The dissertation (thesis) shall be submitted to the University for Evaluation. Students will have to appear for a viva-voce to defend their thesis and on successful completion of the course the M.Sc. (DFSM) degree shall be awarded.

6.1 Registration in 2nd Year

After the 1st year, whether you pass/attempt the first year examination or not, you can seek admission for the 2nd year by submitting the programme registration form with requisite programme fee within the re- registration schedule as notified by the University. At present, 2nd year registration is to be done between 1st Feb to 31st March with late fee of Rs.200/- registration can be done upto 20th April.

Note: Even if the university does not send any communication for re-registration in 2nd year, you are advised to visit the IGNOU website to seek registration.

6.2 Decide Your Time Schedule

The University offers a lot of flexibility and openness in the courses and duration for the completion of programmes. You should take full advantage of this flexibility. As indicated earlier, you can finish this programme in two years if you clear 64 credits. If you are not able to complete it within this period, you can take a maximum of four years to complete it. It would be better if you plan it in a systematic way. For two years you will receive study materials and assignments according to scheme of study but it is upto you to decide which courses you will complete in a particular year. Completion of a course would involve studying the course, completing the assignments, undertaking the practical sessions and appearing in theory and practical term-end examination. If you are busy elsewhere and not able to fully devote yourself to the programme you should fix your targets every year. If you feel that instead of 32 credits you would do only 24 or 16 credits plan it from the beginning of the year, study only these courses do the assignments, attend the practical sessions for them and appear for term end exam. Carry over the rest to next year. Again next year, decide your goals for that year. Whenever you decide to do the previous year's course, ask for fresh assignments in the beginning of the year, submit them according to the schedule and appear in the term end examination. Through a proper planning you can finish this programme according to your convenience.

7. INSTRUCTION SYSTEM

The methodology of instruction in this University is different from that in the conventional universities. The Open University System is more learner-oriented, and the student is an active participant in the teaching- learning process. Most of the instruction is imparted through distance rather than face-to-face communication. The University follows a multi-media approach for instruction. It comprises:

- Self-instructional print material
- Audio-video programmes transmitted through Doordarshan and Radio
- Teleconferencing
- Face-to-face counselling at Programme Study Centres by academic counselors
- Library services

7.1 Print Material

Print material is the primary form of instructional material, although there will be a few audio-video programmes and counselling sessions. Therefore, you have to concentrate mainly on the printed

materials that we sent to you. The printed material would be sufficient to write assignment responses and prepare for the term-end examinations.

The Soft copy of the learning material for different programmes can be downloaded from the following:-

- E-Gyankosh (E-Content repository of educational resources) <https://egyankosh.ac.in/>
- IGNOU E-Content mobile App (Can be downloaded from Google Play Store)

How to use Print Material

The print material prepared by the University is self-instructional in nature. Each Course consists of a number of Units (lessons). Normally, all the Units covered in one course have a thematic unity. The first page of each Course booklet indicates the contents of the course i.e., the number and titles of the Units covered in that course. This is followed by a brief introduction to the Course. This Course introduction explains the total coverage of the course as a whole, as well as, the coverage of each Unit in that course.

Each Unit is structured to facilitate self study for you. The section on Objectives briefly states what we expect you to attain when you have completed the Unit. In Introduction, there is an attempt to forge a link with the topics of the previous Units and the topic to be covered in the present Unit. This is followed by the main body of the Unit, which is divided into various sections and subsections. In the main body there are a few self-check exercises under the caption Check Your Progress Exercise. Enough space is given for you to write your answers to the questions set in the self-check exercises. Answers to these exercises are given in the section Answers to Check Your Progress Exercises at the end of the Unit.

The Section Let Us Sum Up summarizes what has been said in the whole Unit. This summary enables you to recall the main points concerned in the Unit. To facilitate comprehension, important words/ terms covered in the Unit are explained in the section Glossary. Some books for additional reading are suggested in the section Suggested Readings. For your reference purpose, some of these books may be available in the study centre. Please note, the Check Your Progress Exercises are for your practice only, and you should not submit answers to these questions to the University for assessment.

Read the Units carefully and note down the important points. You can use the space in the margin of the printed pages for making notes and writing your comments. While reading the Units mark the words that you do not fully understand. Look for the meaning of such words under the section Glossary or in a dictionary. Read the Unit again and again until you have understood the point. You may also try to find it in earlier Units as it may be explained there. However, if you still do not understand something, consult your Counsellor during the face-to-face sessions at the Programme Study Centre for clarification.

Try to answer 'Check Your Progress' questions. These exercises will help you to reinforce the information/knowledge you gain through your first reading of the text. Proper comprehension of the units and the points/notes made by you while reading through the Units would help you in answering the

Check Your Progress Exercises given in the Units. Once you have written the answer in the blank space provided for each question, you can compare your answers with the answers given in the section 'Answers to Check Your Progress Exercises'.

7.2 Audio-Video Material

The learning package contains audio and video programmes which have been produced by the University for better clarification and enhancement of understanding of the course material given to

the learners. A video programme is normally of 25-30 minutes duration. b) The Video content is available on eGyan kosh (www.egyankosh.ac.in) – the digital learning repository of the University. The video programmes are also telecast on National Network of Gyan Darshan and Swayamprabha channels. All Gyan Vani stations broadcast curriculum-based audio programmes as per their schedule that is notified in advance. In addition, some selected stations of All India Radio also broadcast the audio programmes. Learners can confirm the dates for the programmes from their Learner Support Centres. The information is also provided through the university website.

- (i) **Gyan Vani (GV)** (also known as Interactive Radio Counselling): 105.6 FM Radio was conceived in 2001 as a network of educational FM radio channels operating from various cities in the country. With an aim to enhance and supplement the teaching Station has a range of about 60 kms and covers an entire city/town including the adjoining rural areas. Gyan Vani serves as an ideal medium for niche audience addressing the local educational, developmental and sociorequirements of the people. The flavor of the channel is by and large local and the medium is English, Hindi or language of the region. The overall content pertains to Primary and Secondary Education, Adult Education, Technical and Vocational Education, Higher Education, Distance Education and Extension Education etc. Interactive Radio Counseling (IRC) facility is being provided by GV Stat academic counselors and student support staff. The live phone network. The programmes broadcast through each stations include both pre link – <http://gd.ignouonline.ac.in/gyandhara>.
- ii) **Gyan Drashan: Gyan Darshan (GD)** channel is a major milestone of the Ministry of Human Resource Development (MHRD), Ministry of Information & Broadcasting (I & B Ministry), Prasar Bharati and IGNOU serving as the nodal agency. Launched in the ye channel which offers the best of educational programmes covering a variety of subjects and catering to a wide range of viewers. These include pre-school, primary, secondary and higher secondary students, college/universstudents, youth seeking career opportunities, homemakers and working professionals. The software is pooled from various educational Institutions and Development Organisations. GD conducts two hours of live interactive sessions every day to build interactivity in the Open and Distance Learning (ODL) system. Teachers/Resource persons and IGNOU Regional Center functionaries interact for academic and administrative matters with students. Induction Programmes for new students and convocations for graduating Teleconferencing every year. Gyan Darshan is also available on webcast, thus extending the reach of IGNOU programmes to audiences world over. The Gyan Darshan telecast is also beneficial for students of the formal access Gyan Darshan on IGNOU's website must carry channel as per the Government of India Gaze carries Gyan Darshan in their Bouquets. Gyan Darshan is now part of Swayam Prabha and can be watched on MHRD Channel no.25.
- iii) **Swayam Prabha:** Swayam Prabha is an initiative of the Ministry of Education, Government of India to provide 34 High Quality Educaional TV Channels through DTH (Directo to Home) across the length and breadth of the country on 24x7 basis using GSAT 15 Satellite. Curriculum Swayam Prabha and are provided by NPTEL, IITs, UGC, lifeling learners in India and abroad. IGNOU has been entrusted with the responsibility of National Coordinator for Swayam Prabha Project for four channesi (CH 17 to 20) which are presently operatio 2020 after reorganization of earlier five channels. These four channels are broadcasting the recorded videos as well as live telecasting of IGNOU programmes on 24x7 basis.
- iv) **Gyandhara:** Gyandhara is an internet audio counseling service offered by IGNOU. Students can listen to the live discussions by the teachers and experts on the topic of the day and interact with them through telephone, email and also chat mode. When live sessions are not on, Gyanvani Delhi is made a is available for internet users anywhere in the world. Important events broadcast by GV Delhi are also relayed by all GV stations using the Gyandhara feed. The

Learners can access Gyandhara using the link - <https://www.ignouonline.ac.in/gyandhara/>

7.3 Teleconferencing

Live sessions are conducted via satellite through interactive Gyan Darshan Channel as well as simultaneously webcast at <http://ignouonline.ac.in/> and via Facebook Live sessions. Counselling

7.4 Face-to-face counselling at Programme Study Centres by academic counsellors

In distance education, face-to-face contact between the learners and their tutors/counsellors is an important activity. The purpose of such a contact is to answer some of your questions and clarify your doubts which may not be possible through any other means of communication. It is also intended to provide you an opportunity to meet fellow students. There are experienced academic counsellors at the Programme Study Centres to provide counselling and guidance to you in the courses that you have chosen for study. The counselling sessions for each of the courses will be held at suitable intervals throughout the academic session. **Note an attendance of 60 per cent is compulsory for the theory counselling sessions.** Theory counselling, may be very useful in certain respects such as: to share your views on the subject with teachers and fellow participants, comprehend some of the complex ideas or difficult issues, and get clarifications for many doubts which you would not otherwise try to raise, and consult academic counsellors for selecting courses of study. **The practical counselling sessions are all compulsory.**

Face-to-face counselling will be provided to you at the Programme Study Centre assigned to you. You should note that the counselling sessions will be very different from the usual classroom teaching or lectures. Counsellors will not be delivering lectures or speeches. They will try to help you to overcome difficulties (academic, as well as, personal) which you face while studying for this programme. In these sessions you must look into the subject-based difficulties and any other issues arising out of such difficulties. Besides, some of the audio and video cassettes that are available at that time will be played in the counselling sessions.

Before you go to attend the counselling session, please go through your course material and note down the points to be discussed. Unless you have gone through the Units, there may not be much to discuss. Try to concentrate on the relevant and the most important issues. Also try to understand each other's points of view. You may also establish personal contact with your fellow participants to get mutual help for academic purposes. Try to get the maximum possible help from your counsellors.

For Internship and Dissertation work, details are given in the Internship and Dissertation Journal/Manual.

Please bring all your Units and your folder of corrected assignment with you when you come to the counselling session.

7.5 Programme Study Centres (PSC)

To provide effective student support, we have set up and are still in the process of setting up a number of Programme Study Centres all over the country. You will be allotted one of these Programme Study Centres taking into consideration your place of residence or work. However, each Programme Study Centre can handle only a limited number of students and despite our best efforts, it may not always be possible to allot the Study Centre of your choice. The list of Programme Study Centres in your region can be obtained from the Regional Directors. The particulars regarding the Programme Study Centre to which you are assigned will be communicated to you.

Every Programme Study Centre will have:

- A Coordinator who will coordinate different activities at the Centre.

- Counsellors in different courses to provide counselling and guidance to you in the courses you have chosen.

A Programme Study Centre will have six major functions:

- 1) **Counselling:** Face-to-face counselling for the courses will be provided at the Study Centres. The detailed programme of the counselling sessions will be sent to you by the Coordinator of your Study Centre.
- 2) **Evaluation of Assignments:** Tutor Marked Assignments (TMA) will be evaluated by the Counsellor appointed for different courses at the Study centre. These assignments will be returned to you with tutor comments and marks obtained. These comments will help you in your studies.
- 3) **Library:** For each course some of the books suggested under 'Suggested readings' will be available in the Study Centre Library. All audio and video tapes are also available in the Library.
- 4) **Information and Advice:** At the Study Centre you get relevant information regarding the courses offered by the University, counselling schedules, examination schedule, etc. You will also get guidance in choosing the institutions where you will undertake the internship course.
- 5) **Audio-Video Facilities:** The Centres are equipped with audio-video facilities to help you make use of the audio and video cassettes prepared for different courses. Media notes of these audio-video programmes will also be available at the Study Centre. This will help you to know the contents of each programme.
- 6) **Interaction with Fellow-Students:** In the Study Centre you get an opportunity to interact with fellow-students.

7.6 Library Services

The IGNOU library is the most resourceful information centre in the country in the field of distance education. The collection of printed and electronic resources is quite strong, with 1.5 lakh printed books at IGNOU Headquarters and 2.5 lakh printed books at libraries of RCs and LSCs.

- The University Library provides remote access to 8–10 online databases through the UGC e-Shodh Sindhu Consortium. Users can access over 7900+ e-journals and more than 1700 e-books (<http://www.ignou.ac.in/ignou/aboutignou/division/ldd/EResources>) as well as millions of open-access resources in digital form.
- The holdings of the library collection and access to e-resources can be browsed and downloaded from their desktops through WebOPAC (<https://libraryopac.ignou.ac.in/>) and Integrated Search Engines.
- Library is a member of the Developing Library Network (DELNET) (<https://www.delnet.in/>) that provides various resource sharing services like browsing of Union Catalogues, Inter-Library Loan and Document Delivery from more than 7000 member libraries.
- IGNOU is also a member of 'The Daisy Forum of India' (DFI), which provides Sugamya Pustakalaya (<https://library.daisyindia.org/NALP/welcomeLink.action>) facilitating access to more than 67,000 books to the blind, people with low vision, or people with any other print disability.
- IGNOU library uploads Ph.D/M.Phil theses on UGC INFLIBNET's "Shodhganga" Repository for digital preservation and ensuring continuous access to scholarly content.
- IGNOU library uses Urkund/Ouriginal software provided by UGC INFLIBNET to check the texts of Research papers/Theses/Dissertations for originality and protect it against potential plagiarism (ouriginal.com/login/).
- Research Scholars can take library membership by paying refundable security deposit of ₹5000 for availing lending services.

- Post graduate students interested in remote access of e-resources should download the form from link <http://www.ignou.ac.in/ignou/aboutignou/division/ldd/raf>, fill up the same and email to librarian@ignou.ac.in to facilitate access.

8 HOW WILL YOU BE EVALUATED?

In IGNOU each course is considered as an independent unit. The evaluation for the M.Sc. (DFSM) covers the following aspects:

- a) Continuous evaluation through assignments (Tutor Marked Assignments) (TMAs).
- b) Term-end examinations
- c) Practical Component (Internal Assessment and Term-end Exam)
- d) Dissertation and Internship.

Evaluation, therefore, will be made both concurrent (internal-assessment through assignments) and at the end (end-assessment through the term end examination). Theory and practical component will be evaluated separately. In theory, the weightage of the internal assessment will be 30% and that of the end-assessment will be 70%. For practical, the weightage of the internal assessment will be 40% and that of the end-assessment will be 60%. Students will be declared successful in theory and practical only if he/she scores 40% marks in aggregate combining the internal and term-end assessment. He/she should obtain at least 40% marks separately in concurrent and term end evaluation of each paper.

Depending on the percentage of marks secured by a candidate, the divisions will be awarded as follows:

Ist Division with distinction – 80% and above

Ist Division – 60% to 79.9%

IInd Division – 50% to 59.9%

Pass – 40% to 49.9%

Unsuccessful – Below 40%

8.1 Internal Assessment of Theory Component (Assignments)

In IGNOU, the internal assessment for theory is carried out through assignments. For the M.Sc. (DFSM) programme, you will have to do a total of 10 assignments. Thus for each course, depending on the credit weightage, you will have to work up one assignments and score at least 40% marks to pass the paper (assignment component). If one fails to secure 40% marks, he/she will have to repeat the assignment. The last date for submission will be mentioned against each assignment.

For PGDDPN a total of 7 assignments will be provided.

Assignments – Instructions

Assignments constitute the continuous evaluation. The submission is compulsory. The marks that you get in your assignments will be counted in your final result. Assignments of a course carry 30% weightage while 70% weightage is given to the term-end examinations in the final result. Therefore, you are advised to take your assignments seriously. A simple omission on your part may cause loss to you and inconvenience at all levels in the University.

You have to complete the assignment within the due dates specified in the assignments booklets or within one month of the date of receipt of assignments whichever is later. You will not be allowed to appear for the term-end examination for any course if you do not submit the specified number of assignments in time for that course. If you appear in term-end examination, without submitting the assignments the results of term-end examination would be liable to be cancelled.

The main purpose of assignment is to test your comprehension of the learning materials you receive from us and also to help you get through the courses. The evaluators/ counsellors after correcting the assignments send them back to you with their comments and marks. The comments guide you in your study and help in improving it. The content provided in the printed course materials should be sufficient for answering the assignments. Please do not worry about the non-availability of extra reading materials for working on the assignments. However, if you have easy access to other books, you may make use of them. The assignments are designed in such a way to help you concentrate mainly on the printed course materials and exploit your personal experience.

You can download the assignments also from the site
<https://webservices.ignou.ac.in/assignments/>

The assignment responses should be complete in all respects. Before submission you should ensure that you have answered all the questions in all assignments. Incomplete answer sheets bring you poor grades.

The University/Coordinator of the programme study centre has the right to reject the assignments submitted after the due date. You are, therefore, advised to submit the assignments before the due date.

For your own record, retain a copy of all the assignment responses which you submit to the Coordinator. If you do not get back your duly evaluated tutor marked assignments along with a copy of assessment sheet containing comments of evaluator on your assignment, within a month after submission, please try to get it personally from your study centre. This may help you to improve upon future assignments. Also maintain an account of the corrected assignment responses received by you after evaluation. This will help you to represent your case to the University in case any problem arises.

If you do not get pass grade in any assignment, you have to submit it again. To get fresh assignments go to the site www.ignou.ac.in. However, once you get the pass grade in an assignment, you cannot re-submit it for improvement of grade. Assignments are not subject to re-evaluation except for factual errors, if any, committed by the evaluator. The discrepancy noticed by you in the evaluated assignments should be brought to the notice of the coordinator of the study centre, so that the correct score is forwarded by him to the Student Evaluation Division at Headquarters. Score communicated by the study centre through any mode other than the award list will not be acceptable to the University for taking your score of assignments on your record.

In case you find that the score indicated in the assignment sheet of your tutor marked assignment has not been correctly reflected or is not entered in your grade card, you are advised to contact the coordinator of your programme study centre with a request to forward correct award list to the SE Division at the Headquarters.

Do not enclose or express doubts for clarification, if any, about study material or assignment along with the assignment. Send your doubts in a separate cover to Programme Coordinator, M.Sc. (DFSM) Programme, School of Continuing Education, IGNOU, Maidan Garhi, New Delhi-110068. Give your complete enrolment number, name, address, title of the course, and the number of the Unit or the assignment, etc. on top of your letter.

8.2 Term-end Theory Examination

As stated earlier, term-end examination is the major component of the evaluation system and it carries 70% weightage in the final result.

The University conducts Term-end Examinations twice a year in the month of June and December every year. In the first year you can take the examination for all courses in June of subsequent year failing

which you can take the same in December of subsequent year within the total span of the programme. Similarly, in the case of second year courses, you can take the examination in June of the subsequent year. Whenever you are repeating examination you can appear either in June and December.

Students will be permitted to appear in Term-end Examination subject to the condition that registration for the courses in which they wish to appear is valid or in other words the maximum time to pursue the programme has not elapsed and they have also submitted the required number of assignment(s) in those courses by the due date.

- **Examination Fee**

It is an essential pre-requisite for you to submit the Examination Form for taking examination in any course. Examination fee of Rs. 200 per course is required to be paid. The examination forms are available online. Students can also submit on-line examination form as per guidelines through IGNOU website at www.ignou.ac.in.

The examination form received after the due date or without late fee, whenever applicable shall be rejected.

- **Examination Centre**

Normally the study centre is the examination centre. However, a student is required to fill the examination centre code in the examination form. You are advised to go through the list of study centers available in the Student Handbook and Prospectus/ Programme Guide. In case a student likes to take examination at a particular centre, the code of the chosen centre has to be filled up as examination centre code. However, in case an examination centre chosen by a student is not activated, the university will allot another examination centre in the same Region.

- **Date of Submission of Examination Forms**

To avoid discrepancies in filling up the examination form or to overcome other difficulties while appearing in the term-end examination, students are advised to:

- 1) remain in touch with the Study Centre/Regional Centre/SE Division so as to enquire about any change in schedule of submission of examination form/fee etc., if any;
- 2) fill up the examination form for the next term-end examination without waiting for the result of the previous term-end examination and also specify courses, for which result is awaited;
- 3) retain proof of mailing/submission of examination form till the time of receiving the examination hall ticket.

- **Issue of Examination Hall Ticket**

University issues Examination Hall Ticket to the students atleast two weeks before the commencement of Term-end Examination. The hall ticket may also be downloaded from the University's website www.ignou.ac.in. In case a student fails to receive the Examination Hall Ticket within one week before the commencement of the examination s/he can download the hall ticket from the website and approach the examination centre for appearing in the exam. He/she must also carry the University Identity Card.

- **Early Declaration of Results**

Sometimes students are offered admission in other institutions and/or are selected for employment etc. and they are supposed to submit mark-sheet/grade card within a specified time period. Such students may apply for an early evaluation of their answer scripts and declaration of the result. For this purpose, the students are required to apply in the specified format available on the University website. The students can submit their requests for early declaration of result before the commencement of the Term-end Examination i.e., before 1st June and 1st December respectively. In such a situation, the University will make arrangements for the processing of the answer scripts and declaration of the result (as a special case). The result will be declared in a period of about one month beginning from the date of examination.

- **Re-Evaluation of Answer Script(s)**

The students who are not satisfied with the marks/grade secured by them in Term-end Examination may apply for re-evaluation within one month from the date of the declaration of result i.e. the date on which the result is made available on the University website, in the prescribed application form available on the University website. The better of the two results i.e. original marks/grade and re-evaluated marks/grade will be considered and the revised marks/grades shall be incorporated in the student's record. The revised grade card/marks-sheet will be sent to the students within one month from the receipt of application. Re-evaluation is not permissible for Projects, Practicals and Assignments.

8.3 Practical Component (Internal Assessment and Term-end Examination)

A) Internal Assessment of Practical Component

Unlike the theory component, the practical will have 40% weightage from internal assessment. The internal assessment of the practical will be done by the counsellors located at the PSC. There are no formal question papers to assess the component; however, the counsellor will make a subjective assessment of your understanding and performance by the end of the respective spell.

The marks on internal assessment will be given by the PSC counsellors in a Proforma provided for each practical course. This proforma will be handed over by the respective PSC counsellor to the programme- in-charge as soon as you complete all the practicals under them.

Passing in internal assessment of the practical is a prerequisite for appearing in the term-end examination. A student will have to secure at least 40% marks in Practical Assessment to be declared as pass in internal assessment component. If the student fails to secure pass marks, he/she will have to repeat all the practical activities of related paper.

B) Term-end Practical Examination

For term-end practical examination, there will be one internal and one external examiner. The internal examiner will be from the same programme study centre and the external examiner may be from IGNOU or from other academic institution (in the area of nutrition /food science and technology) in the city. The examiners will be decided by SED in consultation with the school.

The examination pattern will be uniform in the whole country. You will be given experiments/exercises to do and there will be a viva voce.

You will appear in the term-end examination of practical component at your Programme Study Centre. For making you eligible for appearing in the examination, you will have to complete the practical sessions (14 session of 4 hours each) scheduled for the course. Your programme coordinator will inform you about the schedule of your examination of practical component.

You could appear for the practical term-end examination in all or any one of the course offered in that year. For appearing in the practical term-end examination, you should fulfil the following requisites:

- Attend all the practical sessions at the PSC (related to the courses you want to appear) and complete all the activities. The completion certificate signed by respective counsellors is to be submitted as proof.
- Have secured at least 40% marks in the practical internal assessment.

8.4 Dissertation and Internship

The dissertation shall be carried out under the supervision of the counsellor/guide appointed to each learner by the programme incharge/coordinator at the respective programme study centre. After completing the dissertation (thesis), the report is to be submitted to the University for Evaluation. Students will have to appear for a viva-voce to defend their thesis and on successful completion of the course the M.Sc. (DFSM) degree shall be awarded.

Duration of internship for three months, in the Dietetic Department of a recognized hospital/institution, for the award of M.Sc. (DFSM) degree is compulsory (except in case of credit transfer cases). The internship report will be prepared and submitted by the learner for evaluation at IGNOU. For PGDDPN internship for three months is compulsory.

9 OTHER USEFUL INFORMATION

IGNOU Newsletter

The University publishes newsletter two times in a year in English, as well as, in Hindi. It is mailed to the students free of cost. All the important information relevant to the students is published in the newsletter.

Reservation of Seats

The University provides reservation of seats for scheduled castes, scheduled tribes, other backward classes, wards of defence personnel who lost their lives or were seriously injured and physically handicapped students as per the Government of India rules.

Scholarships and Reimbursement of Fees

Reserve categories viz., scheduled caste/scheduled tribe, other backward classes and physically handicapped students, have to pay the fees at the time of admission to the University along with other students.

Physically Handicapped students admitted to IGNOU are eligible for Government of India scholarships. They are advised to collect the scholarship forms from the Directorate of Social Welfare or Office of the Social Welfare Officer of the concerned State Government and submit the filled-in forms to them through the concerned Regional Director of IGNOU.

Provisional Certificate

On request from the student a provisional certificate will be issued on completion of 32/64 credits courses prescribed and opted by the student in the Ist/IInd year, respectively. For provisional certificate you have to write to the Registrar, SE Division, IGNOU, New Delhi – 110 068, in prescribed form as contained in this Programme Guide.

Change or Correction of Address

There is a printed card for the change/correction of address. This card is normally sent to you along with the study material a copy of the same is given in this programme guide. In case there is any correction or change in your address, you are directed to make use of that printed card addressed to Registrar, SRD, IGNOU, Maidan Garhi, New Delhi – 110 068. You are advised not to write letter to any other officer in the University in this regard. Normally, it takes four to six weeks to effect the change.

Therefore, you are advised to make your own arrangements to redirect the mail to the changed

address during this period.

Change of Programme Study Centre

The candidates are required to opt only such study centres which are activated for the programme. As far as possible the University will allot the study centre opted by the candidate. However, the University may change the study centre at its convenience without concurrence of the student at any time.

For the purpose of change of Study Centre you have to send request to the Director of your Regional Centre. A copy of the same may be sent to Student Registration and Evaluation Division at the headquarters.

Counselling facilities for a programme may not be available at all the Centres. As such you are advised to make sure that counselling facilities are available for the programme you have chosen, at the new Centre opted for. As far as possible the request for change of Study Centre is considered favourably. However, the allotment of new Programme Study Centre is subject to availability of seats for the programme at the new Centre asked for.

Course Registration (II year)

You have to submit the Registration form, for 2nd year only at your respective Regional Centre and however, else, if any student sends the Registration/Re-registration Forms/Examination Forms at wrong places and thereby misses the scheduled date and consequently a semester/year, he/she will have no claim on the University for regularization. A copy of the M.Sc. (DFSM) registration form for the 2nd year is available online.

Change of Regional Centre

When you want transfer from one Region to another Region, you have to write to that effect to the Regional Centre from where you seek a transfer marking copies to the Regional Centre where you would like to be transferred to and also to Registrar (SRD), New Delhi. Further, you have to obtain a certificate from the Coordinator of the Programme Study Centre from where you are seeking transfer regarding the number of assignments submitted. The Regional Director from where you are seeking the transfer will transfer all records to the Regional Centre where you seek transfer under intimation to you and Registrar (SRD). The records are normally sent by Registered Post to guard against loss in the postal transit.

Issue of Duplicate Grade Card/Mark Sheet

A duplicate Grade Card is issued after a request is made on the prescribed form. The form for the purpose is available online.

Re-admission

If you are not able to complete the programme in a maximum of 4 years, University has made a special provision of readmission.

Simultaneous Registration

A student is permitted to register for only one programme in the given academic session. You are, therefore, advised to seek admission to only one programme in the given academic session. Violation of this rule attracts cancellation of admission to all the programmes and forfeiture of the programme fees.

However, for the benefit of learners, who fulfil the 3rd criteria for admission given above in Section 4, {i.e. graduates from science, medical, health background (from non-nutrition stream)}, simultaneous admission to the Certificate Programme in Foods and Nutrition (CFN)/Certificate Programme in Nutrition and Child Care (CNCC) (offered by IGNOU) along with admission to the M.Sc. (DFSM) programme shall be granted.

Refund of Fees

Fee once paid will not be refunded under any circumstances. Programme fee may, however, be refunded if admission is not offered by IGNOU for any reason.

Migration Certificate

For Migration Certificate, requisition may be sent to the Regional Director.

Credit Transfer Scheme

University allows credit transfer in the M.Sc. (DFSM) Programme on the request of students who are in- service dietitians (with a degree in Post Graduate Diploma in Dietetics and Public Health Nutrition) and from candidates who have successfully completed a 3 (three) month internship programme as part of the Post Graduate Degree in Dietetics and Public Health Nutrition from a recognized institution/ University in the last five years.

Candidates can seek transfer for the Internship (MFNP-011) Course for a maximum of 8 credit. Those students who are granted credit transfer are not required to do the internship programme. The credit earned by the student (in the Internship Programme) as part of the Post Graduate Degree in Dietetics and Public Health Nutrition will be transferred to the M.Sc. (DFSM) Programme. Credit transfer is also applicable for candidates who have completed some courses under the Post Graduate Diploma Programme in Dietetics from IGNOU.

Students seeking credit transfer should apply in the prescribed form directly to the Registrar (SRD), IGNOU, Maidan Garhi, New Delhi-110 068 enclosing a Demand Draft for Rs.500/- drawn in favour of IGNOU and payable at New Delhi. This can also be done online. **Attested copies of Marks Sheet and syllabus of the Post Graduate Diploma in Dietetics and Public Health Nutrition Course**, should also be enclosed along with the application. In-service dietitians must also enclose the employment certificate.

This process will take a minimum period of three months from the date of receipt of such requests with all the relevant documents by the above concerned officer.

Samples of various forms currently used in the University are provided in this Programme Guide. Whenever you need any of these please take a photocopy, fill it and send it to us.

Disputes on Admission and other University Matters

The place of jurisdiction for filing of a Suit, if necessary will be only at New Delhi/Delhi.

How to Approach the University

During the course of your study you might require some further information or knowledge about rules and regulations. You must know whom to contact for specific information. We are providing information about these matters below under the heading Some Useful Addresses.

The information about the suitable forms for specific purpose is also provided in Section 12 of this programme guide. Whenever you need take a copy of the relevant form and send as per instructions given in the form.

Some Useful Addresses

- | | |
|--|---|
| 1) Academic Matters | Prof. Deeksha Kapur
Programme Coordinator {M.Sc.
(DFSM)} School of Continuing
Education
Indira Gandhi National Open
University, Maidan Garhi,
New Delhi – 110 068. Ph. :
011-29572960/29536347 |
| 2) Non-receipt of study material,
assignments and for fresh assignments | Regional Director
Concerned Regional Centre, IGNOU. |
| 3) Admissions, Fees, Scholarships,
of your Region Exam Schedule, Migration
Certificate and Change of Address | Regional Director |
| 4) Counsellors and other problems
Affairs) relating to Study Centres | Assistant Director (Student
Regional Services Division
IGNOU, Maidan Garhi, New Delhi – 110 068. |
| 5) Enquiry for any problem | Deputy Director
Student Support Cell (SSC)
IGNOU, Maidan Garhi
New Delhi-110 068. |

The following helplines are also available for the student:

SRD & SRE Registrar's Secretariat

Contact No. Phone No: 011- 29535828/2482 Intercom No. 011-29535529 FAX No. 011-29534429 E-mail: sre@ignou.ac.in	
Examination – I	
Contact No.	Issues related to:
Phone No: 011-29535438 Intercom No. 2224/22 13 E-mail: opbangia@ignou.ac.in	1) issues of Degree/Diploma certificate 2) Dispatch of returned Degrees 3) Verification of Degrees
Examination – II	
Contact No.	Issues related to:
Phone No: 0 11-295356743 Intercom No. 2202 E-mail: seemagoswami@ignou.ac.in	1) Issue of Provisional Certificates and Grade Cards 2) Issue of duplicate hall tickets 3) Addition and deletion of course(s) in the hall ticket 4) Non receipt of hall tickets for term and examination 5) Change of examination center
Examination – III	
Contact No.	Issues related to:

Phone No: 011-29536103/6743 Intercom No. 2201/2211 <u>E-mail: kramesh@ignou.ac.in</u>	1) Declaration of pending results of TEE 2) Incorporation of practical marks 3) Verification of provisional certificate and grade card 4) Issue of transcripts
Examination – V	
Contact No.	Issues related to:
Phone No: 011-29532630 Intercom No. 1302/1304/13 17	1) Status of project Reports for BTCM, BTWRE, B.Sc(N), MSC (DFSM), MADE, B.ED, BLIS & MLIS 2) Change of Electives, programme, medium in Bachelor/ Master's Degree programmes (Except BTCM, BTWRE, B.Sc(N), MSC (DFSM), MADE, B.ED, BLIS & MLIS) 3) Re- registration/re-admission in BTCM,BTWRE, BSc.(N), MSC (DFSM), MADE, B.ED, BLIS & MLIS 4) Correction in name in Bachelor/s/Master's Degree programmes (Except BTCM,BTWRE, B.Sc(N),MSC (DFSM), MADE, B.ED, BLIS & MLIS 5) Credit transfer in Bachelor/s/Master's Degree programmes (Except BTCM,BTWRE, B.Sc(N),MSC (DFSM), MADE, B.ED, BLIS & MLIS)
Assignment Section	
Contact No.	Issues related to:
Phone No: 011-29532294 Intercom No. 1312/1319/1325 <u>E-mail: assignments@ignou.ac.in</u>	non incorporation of assignment marks
Online Student Grievance Cell	
Contact No.	Issues related to:
Phone No: 011-29532294 Intercom No. 1312/1319/1325 <u>E-mail: sregrievance@ignou.ac.in</u>	Online student grievances
Front office (May I help You)	
Contact No.	Issues related to:
Phone No: 0 11-29535924-32 Intercom No. 2218	Students' General Enquiries

10 IGNOU WEBSITE

You can get the details of information about IGNOU from the website www.ignou.ac.in.

As a student of IGNOU, you will be interested to know your examination date sheet, term-end theory result, grade card, your correspondence address as recorded at IGNOU Head Quarters and the status of the print materials that you are supposed to be provided in the beginning of the session. In addition you may be interested in downloading information like old question papers, fresh

assignments etc. All these information related to student learning process in clubbed together which could be accessed by clicking on the word **Student Zone**.

You may also notice some information rolling on the screen of the home page. These information are usually displayed periodically according to its relevance. For example, facility for online filling of theory term-end forms will appear only

11. SOME FORMS FOR YOUR USE

In this section we are mentioning some forms which are useful to you. Whenever you have to correspond with the University, please go to ignou website and fill the form carefully and send as per instructions therein. The following forms available on website can be used by you

- 1) Assignment remittance-cum-acknowledgement form; change/correction of address/study centre
- 2) Form for Change of Medium of Study and Courses of Study
- 3) Form for Credit Transfer(annexure 1)
- 4) Form for Non-receipt of Study Material & Assignments
- 5) Form for Provisional Certificate
- 6) Form for Requisition for Fresh Set of Assignments
- 7) Form for Term-end Examination Form and Instructions
- 8) Form for Re-evaluation of Answer Scripts
- 9) Form for Duplicate Grade Card/Mark-sheet
- 10) Form for Migration Certificate of Issue
- 11) Course Registration Form for M.Sc. (DFSM) IIInd Year
- 12) Form for Issue of a Duplicate Copy of University Diploma/Degree/Certificate
- 13) Form for Improvement in Division/Class
- 14) Form for Early Declaration of Result of Term-end Examination
- 15) Form for Obtaining Photocopy of the Answer Script
- 16) Form for Issue of Official Transcript
- 17) Re-admission Form and Guidelines

12. List of Programme regional and study centres approved for MSC(DFSM)

LSC

S.No	Code	LSC Name	RC Name
1	2608	M.B.B. COLLEGE (2608)	AGARTALA
2	0958	S.M. PATEL COLLEGE OF HOME SC. (958)	AHMEDABAD
3	5201	WESTERN COMMAND HRDC (5201)	ARMY-CHANDIMANDIR
4	1349	MOUNT CARMEL COLLEGE, BANGALORE (1349P)	BANGALORE
5	1571	SAROJANI NAIDU GOVT.G.S PG COL (1571)	BHOPAL
6	15229	GOVT. HOME SCIENCE COLLEGE (15229)	BHOPAL
		IGNOU REGIONAL CENTRE BHUBANESHWAR LSC	
7	2100	Code 2100	BHUBANESHWAR
8	8500	Regional Centre Bijapur LSC Code 8500	BIJAPUR
9	06007	SGGS COLLEGE, CHD (06007)	CHANDIGARH
10	06026P	IGNOU PROG STUDY CENTRE 06026P	CHANDIGARH
11	2532	JAYA COLLEGE OF ARTS & SCIENCE (2532)	CHENNAI
12	25221	PGP COLLEGE OF ARTS & SCIENCE	CHENNAI
13	1477	ST THERESAS COLLEGE (1477)	COCHIN
		MEDICAL TRUST INSTITUTE OF MEDICAL SCIENCES	
14	14175	(14175P)	COCHIN
			DELHI 1 (MOHAN ESTATE (SOUTH DELHI))
15	0787	INSTITUTE OF HOME ECONOMICS (787)	
		INSTITUTE OF PUBLIC HEALTH AND HYGIENE	
16	07109	(7109)	DELHI 3 Naraina
17	38039	IGNOU REGIONAL CENTRE DELHI3 LSC Code 38039	DELHI 3 Naraina

18	0408	HANDIQUE GIRLS COLLEGE (408)	GUWAHATI
19	01162	St. Ann's College for Women (01162)	HYDERABAD
		INTERNATIONAL COLLEGE OF GIRLS, JAIPUR	
20	2353	(2353)	JAIPUR
21	1257	GOVT. COLLEGE FOR WOMEN (1257)	JAMMU
		1257P BHAGAT PROGRAMME I/C GOVT. COLLEGE	
22	1257P	FOR WOMEN	JAMMU
23	88008	MAHILA P.G. MAHAVIDYALAYA (88008)	JODHPUR
24	1081	NIFTEM KUNDALI SONEPAT (1081P)	KARNAL
25	28149	WOMAN'S COLLEGE, CALCUTTA (28149)	KOLKATA
26	28112P	KPC MEDICAL COLLEGE& HOSPITAL (28112)	KOLKATA
27	2775	ISABELLA THOBURN COLLEGE LUCKNOW (2775)	LUCKNOW
		THASMSSIM BEEVI ABDHUL KADAR COLLEGE FOR	
28	43069	WOMEN (43069)	MADURAI
29	43086	The Gandhigram Rural Institute	MADURAI
30	49045	B.M.N COLLEGE (49045P)	MUMBAI
		SADABAI RAISONI WOMEN COLLEGE NAGPUR	
31	36040P	MAHARASHTRA	NAGPUR
		GOA COLLEGE OF HOME SCIENCE, CAMPAL	
32	08032	PANAJI (8032)	PANAJI
33	0500	IGNOU REGIONAL CENTRE PATNA LSC Code 0500	PATNA
34	0201	JNR MAHAVIDYALALA (201)	PORT BLAIR
35	16144	IGNOU STUDY CENTRE (16144) (16144)	PUNE
36	3513P	D.B.GIRLS AUTONMOUS PG COLLEGE (3513)	RAIPUR
37	0960	IGNOU STUDY CENTRE RAJKOT (960)	RAJKOT
38	1831	ST.MARY'S COLLEGE (1831)	SHILLONG
39	1134	ST. BEDE'S COLLEGE NAV BAHAR	SHIMLA
40	1261	INSTT.OF HOME SCIENCE (1261)	SRINAGAR
		GOVT COLLEGE FOR WOMEN M A ROAD	
41	30039	SRINAGAR LSC 30039	SRINAGAR
42	1455	COLLEGE OF AGRICULTURE (1455)	TRIVANDRUM
		College of Indigenous Food Technology, Konni	
43	40040	Anakuthi,	TRIVANDRUM
		DEPARTMENT OF ANIMAL HUSBANDRY &	
44	48003P	DAIRYING, BHU VNS (48003)	VARANASI

13. ANNEXURE 1

APPLICATION FOR CREDIT TRANSFER TO M.Sc. (DFSM)

(To be filled only for credit Transfer against MFNP-011)

- 1) Enrolment Number
- 2) Study Centre Code
- 3) Regional Centre Code
- 4) Name of the Student:
(in Capital Letters)
- 5) Father's/Husband's Name:
- 6) Complete Postal Address:
Distt. Pin
- 7) Programme from which credit Transfer is sought **M.Sc. (DFSM)**
- 8) Details of Course Opted for Credit Transfer:
(Please refer to the details of the Credit Transfer Scheme)

Sl. No.	Course Code	Course for which Credit Transfer is Sought	Fec Rs. 500/-
1.	MFNP-011	Internship	

9. Details of Fee being paid for Credit Transfer:

Demand Draft No. Dt..... Amount Rs.

Name of the Bank.....Place.....

UNDERTAKING

I a student of M.Sc. (DFSM) of IGNOU request for Credit Transfer of the Course as detailed above. I undertake not to revive the registration of these courses for credit transfer to any other programme. Option exercised herein is firm & final. Certified copies of Marksheets/Diploma are enclosed. Signed this on.....day..... of..... 201....

To

The Registrar (SRD)
IGNOU, Maidan Garhi
New Delhi-110068

Signature of Student

Name :

Encl: As above

INSTRUCTIONS FOR SUBMISSION FOR APPLICATION FOR CREDIT TRANSFER

- 1) Read the instructions given in your Programme Guide carefully.
- 2) For M.Sc. (DFSM) Credit Transfer is allowed up to a maximum of 16 credits only.
- 3) Enclose the attested copies of the following alongwith the form:
 - Certificate and marks lists issued by the accredited Institute/University for PG Diploma in Dietetics and Public Health Nutrition.
 - Syllabus of accredited Institute/University.
 - Employment Certificate in Care of In-Service Dietitians.
- 4) Pay the credit transfer fee at the rate of Rs. 500/- per 8 credits or part thereof through a crossed Demand Draft in favour of 'Indira Gandhi National Open University' payable at New Delhi.
- 5) Submit the filled in Credit Transfer Form to the following address:

The Registrar (Student Registration Division) Indira Gandhi
National Open University Maidan Garhi
New Delhi-110068

14. PREVIOUS YEARS QUESTIONS PAPERS

You can access Question papers of last ten years from [https:// webservices.ignou.ac.in/Pre-Question/](https://webservices.ignou.ac.in/Pre-Question/).

However for your convenience, one Question Paper of each course is being shared here:

MFN-001

Term-End Examination Sample Paper June, 2006

FMFN-001

**MASTER OF SCIENCE (DIETETICS AND
FOOD SERVICE MANAGEMENT)**

Term-End Examination

June, 2006

MFN-001: APPLIED PHYSIOLOGY

Time : 3 hours

Maximum Marks: 100

Note : Answer *five* question in all Question No. 1 is *compulsory* All questions carry equal marks.

1. (a) Explain the following in 2 - 3 sentences only 10

- (i) Haemopoiesis
- (ii) Lysosome
- (iii) Phagocytosis
- (iv) Erythropoiesis
- (v) Antigen

- (b) Match the items in Column A with the items in Column B 10

Column A

Column B

- | | |
|--------------------------------------|---|
| (i) Nephron | (a) hormones secreted by anterior pituitary |
| (ii) Neuron | (b) examples of gastrointestinal hormone |
| (iii) Motor cortex | (c) hormone secreted by adrenal cortex |
| (iv) Secretin, CCK | (d) functional unit of kidney |
| (v) Luteinizing hormone, prolactin | (e) muscular tube which carries spermatozoa |
| (vi) Oxytocin, antidiuretic hormone | (f) hormone secreted by the thymus gland |
| (vii) Insulin, glucagon | (g) hormone secreted by posterior pituitary |
| (viii) | Aldosterone, cortisol, cortisone (h) retinal nerve cell |
| (ix) Melatonin | (i) cerebral functional area |
| (x) Vas Deferens | (j) hormone secreted by pineal gland |
| (k) hormone secreted by the pancreas | |

- (l) basic unit of the nervous system
2. (a) “Physiology is an interlink between nutrition and healthy human body.” Elaborate on the statement, highlighting the relationship between nutrition and physiology. 8
- (b) Differentiate between eukaryotic cells and prokaryotic cells, illustrating their structure and functions. 12
3. (a) Briefly describe the role of macrophages in the immune system. 10
- (b) What do you understand by the term cardiac cycle? Explain the phases and the significance of cardiac cycle. 10
4. (a) What are the functions performed by the following organs of the respiratory system: 6
- (i) Larynx
- (ii) Lungs
- (b) Briefly describe the process involved in the interchange of gases within the lungs. 8
- (c) What is artificial respiration? Describe in brief the techniques of artificial respiration. 6
5. (a) Describe the structure and functions of the following organs: 6+6
- (i) Liver
- (ii) Pancreas
- (b) “The small intestine secretes intestinal juices”. Elaborate the functions of these intestinal juices. 8
6. (a) What is the functional unit of the kidney? Illustrate the functional unit, describing the parts and their functions. 10
- (b) Briefly describe the two processes involved in the transportation of substances across the cell membrane. 10
7. (a) Describe the nerve cell morphology and explain how neurons communicate with each other. 10
- (b) Name the two organs which form the central nervous system. 2
- (c) Describe the structure and functions of cerebrum with the help of suitable diagram. 8
8. Write short notes on any **four** of the following: 5+5+5+5
- (i) Female reproductive organs and their functions
- (ii) Structure and functions of the internal ear
- (iii) Organs involved with taste perception
- (iv) Innate Immunity
- (v) Tissue and their functions

MFN-002

**MASTER OF SCIENCE (DIETETICS AND
FOOD SERVICE MANAGEMENT)**

Term-End Examination

June, 2006

MFN-002: NUTRITIONAL BIOCHEMISTRY

Time : 3 hours

Maximum Marks: 100

Note : Answer *four* questions in all Question no. 1 is *compulsory*.

1. (a) Fill in the blanks: 5
- (i) Carbohydrates are basically polyhydroxy_____or ketones or their derivatives.
 - (ii) Simple lipids are esters of_____with various alcohols
 - (iii) Molecules which have the characteristics of an acid and a base and are capable of reacting chemically either as an acid or a base are called____molecules
 - (iv) Vitamin_____functions as a coenzyme for the transfer of _____ group from amino acids.
NH 2

- (v) The biochemical role of ascorbic acid is related to it being a good ____ agent.
- (b) Explain the following in 2 - 3 sentences only: 10
- (vi) Holoenzyme
 - (vii) Nucleotide
 - (viii) Inulin
 - (ix) Chylomicron
 - (x) Gluconeogenesis
2. (a) What is meant by the term isomerism? Explain the term in the context of the structural isomers of carbohydrates. 2+8
- (b) Give the general structural formula of an amino acid. Classify the amino acids according to the nature of the side chain, giving examples. 2+3
3. Justify the following statements giving examples: 5+5+5+5
- (i) Isoenzymes are often estimated to specify a disease organ/tissue.
 - (ii) Insulin influences the intracellular utilization of glucose.
 - (iii) Low protein diet is recommended in arginemia.
 - (iv) Calcitriol affects calcium homeostasis.
4. (a) Enumerate the various steps of cholesterol synthesis and discuss how it is regulated in the body.
- (b) What is lipogenesis? List the reactions involved in this process. 8
5. (a) What is the significance of citric acid cycle? Enumerate the reactions of this cycle. 15
- (b) Enumerate the components of electron transport chain. 5
6. (a) What is the major end product of protein metabolism? Elaborate on the steps involved in the urea cycle. 12
- (b) Differentiate between ketogenic and glucogenic amino acids giving examples. 8
7. Write short notes on any **four** of the following: 5+5+5+5
- (i) Mechanism of enzyme action
 - (ii) Inborn disorders of lipid metabolism
 - (iii) Role of pancreas in digestion
 - (iv) Biological role of vitamin A
 - (v) Classification of hormones according to their mechanism of action

MFN-003

**MASTER OF SCIENCE (DIETETICS AND
FOOD SERVICE MANAGEMENT)**

Term-End Examination

June, 2006

MFN-003: FOOD MICROBIOLOGY AND SAFETY

Time : 3 hours

Maximum Marks: 100

Note : Answer *four* questions in all Question no. 1 is *compulsory*.

1. (a) Explain the following in 2 -3 sentences only: 10
 - (i) Probiotics
 - (ii) Water Activity
 - (iii) Favism
 - (iv) Sequestrants
 - (v) Bar Code
- (b) Match the items in Column A with the items in Column B 5

<i>Column A</i>	<i>Column B</i>
(i) ISO 14000	(a) Carbonates of calcium and magnesium
(ii) Controlled atmosphere packaging	(b) Disinfectant with bactericidal capacity
(iii) Iodophor	(c) Cyanogenic glycosides
(iv) Buffering agent	(d) International reference for quality requirement to meet the environmental challenges
(v) Toxicant in plant foods	(e) Acetic acid used in beverages and cold drinks
	(f) Phytates, tannins, oxalates
	(g) Maintain the desired atmosphere throughout the shelf-life of the product.
2. (a) Briefly discuss the role of microbiology in biotechnology and fermented foods, giving and two examples for each. 5+5
- (b) Elaborate on the factors affecting food safety. 10
3. (a) Graphically, present the four phases of bacterial growth and discuss any three factors which affect the growth of bacteria. 3+
- 7
- (b) Briefly, explain the physical methods used for the control of micro-organisms. 10
4. (a) List the three categories of food borne diseases. Describe any one of the above categories

3+7

- (b) “A variety of naturally occurring toxicants present in animal foods have been linked to human ill-health and death.” Elaborate on the statement, giving appropriate justifications. 10
5. (a) Differentiate between food contamination and food adulteration, giving examples. 5
- (b) With the help of examples, briefly explain the functional role of additives in foods. 7
- (c) Discuss the voluntary schemes of certification aimed at providing quality and safety in our country. 8
6. (a) “Packaging is crucial for food safety.” Justify the statement, highlighting the significance and functions of packaging.
- (b) What is HACCP? Discuss the need, relevance and the principles of HACCP in a food service establishment. 10
7. Write short notes on any *four* of the following: 5+5+5+5
- (i) Recent concerns of food safety
 - (ii) Measures to be adopted by the street food vendors to ensure food safety
 - (iii) Spoilage of meat
 - (iv) Use of disinfecting agents in food industry
 - (v) Environmental issues linked to food packaging

MFN-004

**MASTER OF SCIENCE (DIETETICS AND
FOOD SERVICE MANAGEMENT)**

Term-End Examination

June, 2006

MFN-004 : ADVANCE NUTRITION

Time : 3 hours

Maximum Marks: 100

Note: Attempt Five questions in all. Question No.1 is compulsory. All questions carry equal marks.

- 1) a) Explain the following in 2 - 3 sentences only : 10
 - i) Probiotics
 - ii) Safe requirements
 - iii) 2 compartment model
 - iv) Altitude sickness
 - v) Gene expression
- b) Give the national and the FAD/WHO recommendations for: 10
 - i) Vitamin A requirement (retinol equivalent) for a 4 - 6 year old child
 - ii) Thiamin requirement for adult sedentary man
 - iii) Vitamin C intake of adult women
 - iv) Iron intake of 16 - 18 year old adolescent girl (for 5% iron bioavailability)
 - v) Calcium intake of pregnant woman
- 2) a) Briefly discuss the energy requirement for adult man and woman as given by ICMR and FAO/WHO/UNU. 10
- b) Describe the properties and effects of dietary fibre in human nutrition. 5+5
- 3) Explain the following statements; giving examples: 5+5+5+5
 - i) Age, sex, body weight affect nutrient requirements.
 - ii) The dietary reference intakes (DRI) are a set of four nutrient-based reference values.
 - iii) Absorption of glucose into the mucosal cells is by active transport.
 - iv) Nutrient balance studies for determining nutrient requirements.
- 4) a) Present a Critical analysis on the protein quality of Indian diets. Also enumerate the measures you may adopt to improve the quality of protein in your diet. 5+
5
- b) Explain the following and their role in human nutrition: 10
 - i) Saturated. and unsaturated fatty acids

- ii) Short chain, medium chain and long chain fatty acids
 - iii) Essential fatty acids
 - iv) Trans fatty acids
- 5) Explain the following, giving appropriate examples: 5+5+5+5
- i) Retinol and carotenoids have different vitamin A activity
 - ii) Factors affecting calcium absorption
 - iii) Role of folate in DNA biosynthesis and methylation cycle
 - iv) Absorption of zinc depends on the composition of the diet
- 6) a) What is the aim of menu planning? 5
- b) Briefly describe the effects of maternal undernutrition on lactation performance and quality of milk. 8
- c) Highlight the major difference between the national and international energy recommendations for infants and preschoolers. 7
- 7) a) What indicators would you use to assess the iron status of population groups? Comment. 7
- b) "Iodine and selenium content of foods is highly variable." Comment on the statement, highlighting the factors which influence the content of these nutrients in the diet. 7
- c) What are polyphenols? Briefly discuss their health benefits. 7
- 8) Write short notes on any **four** of the following: 5+5+5+5
- i) Guidelines for the management of population groups during emergency/natural disaster.
 - ii) Types of food in the space food system.
 - iii) Common nutritional problems of older children and adolescents.
 - iii) Nutrient requirements of the elderly.
 - iv) Health benefits of other dietary factors with anti-nutritional effects.

MFN-005

**MASTER OF SCIENCE (DIETETICS AND
FOOD SERVICE MANAGEMENT)**

Term-End Examination

June, 2006

MFN-005 : CLINICAL AND THERAPEUTIC NUTRITION

Time : 3 hours

Maximum Marks: 100

Note : Answer *five* question in all Question No. 1 is *compulsory* All questions carry equal marks.

- 1) a) Fill in the blanks : 10
- i) is a disease of inherited metabolic disorder of three branched chain amino acids, leucine; isoleucine and valine.
 - ii) Abre intake recommendations for adult women is per day.
 - iii) Celiac disease patients should be given free diet.
 - iv) Energy requirement for a preterm infant is..... kca/kg/day.
 - v) quality protein is recommended for renal patients.
 - vi) The amino acids are desirable for liver diseases
 - vii) WHO recommends..... mg/day intake of cholesterol for prevention of heart diseases.
 - viii) An underweight individual undertaking moderate activity would require kcal/kg IBW/day.
 - ix) Day time restriction of dietary has been shown to improve the efficacy of the drug given to Parkinson's disease patients.
 - x) Inflammatory bowel disease (IBD) is a general term used to refer to chronic inflammatory condition of the
- b) Define the following in 2/3 sentences each: 10
- i) Diverticulosis
 - ii) Cholelithiasis
 - iii) Cancer Cachexia
 - iv) Tyrosinemia
 - v) Syndrome X .
- 2) a) Explain the concept of medical nutrition therapy, highlighting the role of dietitian in health care and counselling. 10
- b) Enlist the common acute and chronic fevers/infections. Briefly describe the dietary management of any one chronic infection/fever mentioned above. 10

- 3) a) What feeding methods would you adopt for providing nutritional support to ill patients? Explain briefly. 10
- b) List the various phases of a stress response. Briefly describe the dietary management (pre-operative and post-operative) of a patient undergoing surgery. 10
- 4) a) As a dietitian, how would you diagnose an adverse food reaction? Elaborate on the preventive measures you would advocate to a patient and his family regarding the adverse food reaction. 10
- b) "Treatment of obesity today has shifted from mere, 'weight loss' to 'weight management'. Justify the statement, highlighting the three-pronged approach to obesity management. 10
- 5) a) What is dyslipidemia? Briefly describe the dietary management of dyslipidemia. 10
- b) Briefly describe the importance of exchange table and glycemic index in a diabetic diet. 10
- 6) Elaborate on the medical nutrition therapy for: 5+5+5+5
 - a) Peptic ulcer
 - b) Galactosemia
 - c) Gastritis
 - d) Ulcerative colitis
- 7) a) Enlist the common liver diseases. Describe the recommendations and dietary management for viral hepatitis. 10
- b) Present the rationale for the dietary modifications/recommendations for an acute renal failure patient. 10
- 8) Write short notes on any **four** of the following : 5+5+5+5
 - i) Role of anti-oxidants in cancer prevention
 - ii) Nutrient and drug interaction
 - iii) Common eating disorders
 - iv) PKU
 - iv) Feeding and nutritional care of patients suffering from Alzheimer's disease

MFN-006

**MASTER OF SCIENCE (DIETETICS AND
FOOD SERVICE MANAGEMENT)**

Term-End Examination

June, 2006

MFN-006: PUBLIC NUTRITION

Time : 3 hours

Maximum Marks: 100

Note : Answer *five* question in all Question No. 1 is *compulsory* All questions carry equal marks.

1. (a) Explain the relationship between the following sets of terms in 2 - 3 sentences only. 10

(i) ICDS	—	Anganwadi
(ii) Programme Management	—	Programme Administration
(iii) Food Security	—	Food Availability
(iv) Food Behaviour	—	Socio-cultural factors
(v) Marasmus	—	Wasting
- (b) Fill in the blanks:
 - (i) _____ literally means to supervise, or “to keep an eye on” or to scrutinize.
 - (ii) Swelling in the feet and accumulation of water in the tissues, hands, legs and face refers to the condition called _____ .
 - (iii) One of the well recognized features of iodine deficiency is _____ .
 - (iv) _____ is the disease caused due to the excessive consumption of a pulse which contains a toxic amino acid.
 - (v) The scientific study of the human population is termed as _____ .
- (c) State True or False. Correct the false statements. 5
 - (i) Pellagra is a disease that occurs when a person does not get enough thiamine in the diet.
 - (ii) Cost benefit analysis is a tool to establish the priority of a particular health service action.
 - (iii) Sex ratio is defined as the number of males per 1000 females.
 - (iv) The ratio of weight (in kg)/height (m^2) is referred to as overweight.
 - (v) Under the Pradhanmantri Gramodaya Yojana, the feeding is supplemental to meet the calorie/protein gap of 500 kcal, 25 g proteins for pregnant and nursing mothers.
2. (a) “Public nutrition is a multi-disciplinary concept.” Elaborate on the statement giving appropriate justifications. 10
- (b) Define the concept of health care. Define the health system functioning at different levels in our country. 10

3. (a) Differentiate between the clinical and sub-clinical forms of PEM. 8
- (b) What is ariboflavinosis? How can we prevent it? 4
- (c) Briefly describe the measures you would recommend for the prevention of iron deficiency anaemia in a community. 8
4. (a) What is malnutrition? With the help of a flow chart enumerate the economic consequences of malnutrition. 10
- (b) What is nutrition surveillance? Present a brief review on the major national agencies involved with collection and compilation of data related to public health significance. 10
5. (a) What is nutritional anthropometry? Briefly enumerate the determinants of nutritional status using anthropometric measurements.
- (b) What do you understand by biochemical assessment? What is its significance? Describe the biochemical tests for any one public nutrition problem that we can use to assess the nutritional status of an individual. 10
6. (a) Enumerate the aims and the instruments of the national nutrition policy of India. 8
- (b) List the different nutrition programmes implemented in our country to combat malnutrition. 4
- (c) Discuss the need, relevance and the components of the national programme of nutrition support to primary education. 8
7. (a) Briefly describe the various steps you would adopt in planning, implementing and evaluating a public nutrition programme. 10
- (b) "Use of different communication channels is effective for behaviour change". Justify the statement, giving appropriate examples. 10
8. (a) Write short notes on any four of the following: 5+5+5+5
- (i) Social marketing: a key to successful public health programme
- (ii) Types of evaluation of nutrition education programmes
- (iii) Immunization as a strategy to combat public health problems.
- (iv) Supplementation — the medicinal approach to combat public health problems.
- (v) Food based approaches — benefits and applications.

MFN-007

**MASTER OF SCIENCE (DIETETICS AND
FOOD SERVICE MANAGEMENT)**

Term-End Examination

June, 2006

MFN-007 : .ENTREPRENEURSHIP AND FOOD SERVICE MANAGEMENT

Time : 3 hours

Maximum Marks: 100

Note : Answer *five* question in all Question No. 1 is *compulsory* All questions carry equal marks.

- | | |
|--|----|
| 1) a) Differentiate between the following <i>sets</i> of terms.: | 10 |
| i) Centralized and Decentralized Food Service | |
| ii) Adulteration and Misbranding | |
| iii) Direct and Indirect Transmission of disease | |
| iv) Sanitizing Agent and Cleaning Agent | |
| v) Autocratic and Participative Approach to Staff Management | |
| b) Give one example for each of the following: | 10 |
| i) Principles of management | |
| ii) Approaches to food service management | |
| iii) Types of plan | |
| iv) Parts of a planning guide | |
| v) Characteristics of successful entrepreneur | |
| vi) Types of menu | |
| vii) Moist cooking methods | |
| viii) Types of service in a restaurant | |
| ix) Productivity measures | |
| x) Methods to wash, rinse and sanitize food contact services | |
| 2) a) Describe the food service systems model highlighting its components and significance. | 8 |
| b) What is planning? Enumerate the phases of planning a layout. | 12 |
| 3) a) Discuss the process of management and how it affects the planning of a food service unit. | 10 |
| b) Briefly describe the various factors which have influenced the development of food service establishments. | 10 |
| 4) a) "Menu is one essential, critical focal point of aU. activities in a food service establishment." Justify the statement, giving appropriate examples. | 10 |
| b) Briefly elaborate on the methods of purchase you will adopt for purchasing raw food materials for a hospital dietetic kitchen. | 10 |

- 5) a) With the help of a flow ,chart illustrate the typical activities of a food service establishment.
Enumerate the record needed in each of these operations, illustrating with an example.4+8
- b) What is meant by production control in a food service operation? Briefly discuss the important. tool of production control, highlighting its importance. 8
- 6) a) What is a food processing continuum? Classify the food service systems based on the food processing' continuum. 10
- b) Enumerate the skins and responsibilities required by a dietitian and/or a food service manager for making the organization successful. 10
- 7) a) What processes would you adopt for selection and recruitment of a manager in your catering establishment? 10
- b) What are the components of a job design? Discuss. 10
- 8) Write short notes on any *four* of the following: 5+5+5+5
 - i) Application of the growth phases of bacteria to the food industry
 - ii) Temperature guide for food safety
 - iii) Types of equipment used in food establishments
 - iv) Laws enacted for the benefit of employees and employers in a food service unit
 - v) Staff scheduling

MFN-008

**MASTER OF SCIENCE (DIETETICS AND
FOOD SERVICE MANAGEMENT)**

Term-End Examination

June, 2006

MFN-008: PRINCIPLES OF FOOD SERVICE

Time : 3 hours

Maximum Marks: 100

Note : Answer *four* questions in all Question no. 1 is *compulsory*.

1. (a) Give one example for each of the following: 10
 - (i) Monosaccharide
 - (ii) Components of starches
 - (iii) Saturated fatty acids
 - (iv) Dryer types for liquid and solid food
 - (v) Vocabulary used to describe flavour of food
- (b) Define the following 10
 - (i) Reducing sugar
 - (ii) Isoelectric point
 - (iii) Tyndall Effect
 - (iv) Winnowing
 - (v) Concentration
2. (a) What do you understand by food science and food technology? 5
 - (i) What are sugars? Briefly describe the role played by sugars in the appearance of food. 14
3. (a) "Lipid oxidation is the major cause of food spoilage." Justify the statement, graphically presenting the lipid autoxidation process. 10
 - (b) Differentiate between protein concentrates, isolates and hydrolysates, highlighting their application in the food industry. 10
4. (a) "Analysis of enzymes in foods provides useful information regarding the condition of food". Comment on the statement, giving justifications in favour of the statement.
 - (b) How does a solution differ from a colloidal system? Present the classification of colloidal system, with suitable examples. 10
5. (a) Present a brief review on the quality attributes of foods and their significance. 10
 - (b) Discuss briefly, the various alterations occurring in fruits and vegetables, during processing. 10
6. (a) Indicate the significance of the 12 D process used in the canning food industry. 8

- (b) What are fermented foods? Discuss the indigenous fermented foods and the micro-organisms involved in the preparation of these foods. 12
7. Write short notes on any *four* of the following: 5+5+5+5
- (i) Sensory evaluation of food products
 - (ii) Primary processing techniques
 - (iii) Functional foods and their significance
 - (iv) Seed gums and their food applications
 - (v) Food spoilage and its causes

MFN-009

**MASTER OF SCIENCE (DIETETICS AND
FOOD SERVICE MANAGEMENT)**

Term-End Examination

June, 2006

MFN-009 : RESEARCH METHODS AND BIOSTATISTICS

Time : 3 hours

Maximum Marks: 100

Note : Answer *five* question in all Question No. 1 is *compulsory* All questions carry equal marks.

1) a) Differentiate between the following sets of terms : 10

- i) Alpha error and Beta error
- ii) Ordinal and Nominal scale
- iii) Systematic and Random error
- iv) Discrete and Continuous variable
- v) Single and Double blind study

b) Give one example for each of the following: 10

- i) Components of epidemiology Stages of research process
- iii) Forms of hypothesis
- iv) Experimental designs
- v) Non-probability sampling
- vi) Characteristics of a good research tool
- vii) Research tools in Biostatistics
- viii) Representation of frequency distribution
- ix) Measure of uncertainty
- x) Limits/levels of confidence interval

2) Iron deficiency anaemia is a major public health problem in our country. The Government is interested in designing a study to demonstrate/study the role/efficacy of supplementation and nutrition/health education as strategies to combat this problem.

Plan a research study to be conducted by you in your region, covering the following aspects: 20

- i) Statement of problem
- ii) Formulation of Hypothesis and Objectives
- iii) Research Design (to include sample design, operational, observational and statistical design)
- iv) Sample size determination
- v) Interpretation of data

- 3) a) Describe the various types of descriptive studies which can be conducted at the population and individual level. 10
- b) Differentiate between observational and experimental study designs, highlighting their advantages and Unutations. 10
- 4) a) What do you understand by the. terms “Level of significance” and “Power” ? Comment on their significance in research. 6
- b) Explain the concept of normal probability distribution. 6
- c) Given herewith is the data related to the weight of two groups of subjects :

S. No.	Weight (kg)	
	Children	Adolescents
1	7.5	35.5
2	6.5	55-0
3	5.5	45.0
4	8.0	42.0
5	6.0	56.5

Find out which group shows greater Viriance. 8

- 5) a) Consider the following situations:
- A researcher randomly selected 2 states. Within the states she selected 3–4 districts and then from these districts, a sample of anganwadis were selected for the study.
 - To study the incidence of anaemia by nutritional status, a researcher first categorized the subjects according to nutritional status (i.e. normal, mild, moderate, severely malnourished) and then drew independent random sample of 20 subjects from each nutritional status category.
 - To study the prevalence of obesity among children in secondary schools in an urban area, a researcher just made a list of the schools, based on proximity to his/her home. Then out of the 1000 children, he/she decided to study 150 subjects, by selecting every kth. child.
- A) Indicate the method of sampling adopted by the researcher in each of the situations above. 3
- B) Highlight the advantages/limitations of each method. 8
- b) Differentiate between the following tools, giving examples: 9
- Structured and Unstructured interview
 - Closed and Open-ended questionnaire
 - Participant and Non-participant observation
- 6) a) In a study of Systolic Blood Pressure (SBP) in children of hypertensive and nonnal fathers, the following data was obtained:

Systolic Blood Pressure of children with

Hypertensive Father	Norm otensive Father
(n = 5)	(n = 10)
107	104
121	115
100	110
95	94
110	100
	102
	95
	98
	114
	97

Test whether the . mean SBP in children of hypertensive fathers is significantly higher than those in normotensive fathers at $p = 0.05$. 10

- b) What are the different ways in which you can represent your nominal and ordinal data? Explain, giving examples. 10
- 7) a) In a study to estimate the risk of smoking to coronary heart disease, a group of researchers found 863 smokers within 2000 coronary heart disease patients and 1563 smokers among 5000 healthy people.
- i) What kind of epidemiological study is this? Explain its characteristics. 2+4
- ii) Construct a 2 x 2 table and calculate the odds ratio. 4
- b) A researcher is interested to find out if there is a gender difference in nutritional status (weight for age) among pre-school children. For this, she selected a random sample of 200 (120 boys and 80 girls) pre-school children. Data related to weight for age suggested that 28 girls have normal weight for age, and 52 were underweight. Among boys 68 were normal and 52 underweight. Help the researcher by analysing the data at $\alpha = 0.05$ level of significance. 10
- 8) Write short notes on any **four** of the following: 5+5+5+5
- i) Measures of relationship
- ii) Measures of relative positions
- iii) Degree of Freedom
- iv) Indicators of morbidity
- v) Issues in the design and conduct of clinical trials.

**15. Kind Attention: All Past and Present Students of IGNOU!
Participate in student satisfaction survey by NAAC at**

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16.

IGNOU POLICY REGARDING SEXUAL HARASSMENT AT THE WORKPLACE

In compliance with the guidelines of the Supreme Court, IGNOU has adopted a policy that aims to prevent/prohibit/punish sexual harassment of women at the workplace. Academic/non-academic staff and students of this University come under its purview.

Information on this policy, rules and procedures can be accessed on the IGNOU website (www.ignou.ac.in). Incidents of sexual harassment may be reported to the Regional Director of the Regional Centre you are attached to or to any of the persons below:

Apex Committee Against Sexual Harassment (ACASH)

I APEX COMMITTEE AGAINST SEXUAL HARASSMENT (ACASH)			
1	Prof. Nayantara Padhi, SOMS	29573025	nayantara@ignou.ac.in
2	Dr. Bijayalaxmi Mishra, Dy. Director, Research Unit	29571998	bijayalaxmi@ignou.ac.in
3	Ms. Anita Sajwan, AD (software), ERP	29571705	anitas@ignou.ac.in
4	Dr. Rama Pani, Editor, University News, Head of the Research Division, AIU		rama.pani2013@gmail.com
5.	Dr. Neerja Singh, Associate Professor, Satyawati College,, Delhi University		neerja17oct@gmail.com
II IGNOU COMMITTEE AGAINST SEXUAL HARASSMENT (ICASH)			
1	Prof. Vandana Singh, Chairperson, ICASH	29572932	cash@ignou.ac.in ,
2	Dr. Anamika Shukla, Associate Professor, SOH	29572772	anamikashukla@ignou.ac.in
3	Dr. Smita M. Patil, Asst. Professor, SOGDS	29571618	smitampatil@ignou.ac.in
4	Dr. Sujata Santosh, Asst. Director, NCIDE	29573070	sujata.santosh@ignou.ac.in
5	Dr. S. K. Pulist, Dy. Director, SRD	29571311	skpulist@ignou.ac.in
6	Ms. Radha Padmanabhan, AR, P&DD	29571720	radhkar@gmail.com
7	Ms. Reema Kharbhandha, PS, COE	29572303	rkharbhandha@ignou.ac.in coe.office@ignou.ac.in
8	Ms. Mamta Khanna, Dy Director, CD (continuing Member)	29571917	mkhanna@ignou.ac.in
9	Mr. Gianender Kr. Sharma, PA (Admin) (continuing Member)	29572204	sharmagian@ignou.ac.in
10	Ms. Rinki Sharma, Ph.D Scholar, Economics		rinkisharma.du@gmail.com
11	Prof. Nilika Mehrotra, JNU, New Delhi		nilika21@yahoo.co.in nilika@mail.jnu.a.in
12.	Ms. Nandita Baruah, Country Representative, The Asia Foundation, New Delhi		nandita.baruah@asiafoundation.org
III REGIONAL SERVICES DIVISION COMMITTEE AGAINST SEXUAL HARASSMENT (RSDCASH)			
1	Dr. Ranjita Panda, Dy. Director, Chairperson, RSDCASH	29571111	rsdcash@ignou.ac.in
2	Dr. Moumita Das, Asst. Director, NCIDE	29572967	moumitadas@ignou.ac.in
3	Dr. T. Akoijam, Asst. Professor, SOTHSM	29571756/51/57	akoijam@ignou.ac.in
4	Ms. Seema Goswami, Dy. Registrar, F&A	29571209	sgoswami@ignou.ac.in
5.	Mr. Parag Gupta, SO, Admin (Gov.)	29571420	parag@ignou.ac.in
5	Ms. Harshita Raghuvanshi, Advocate, High Court/Supreme Court of Delhi		harshitaraghuvanshi@hotmail.com