



पशुपालन एवं दूध प्रौद्योगिकी

## MAHARAJA SUHEL DEV STAT UNIVERCITY, AZAMAGARH U.P.

Template for designing the Syllabus of Pre-Ph.D. course work

As per NEP-2020 guidelines

With effective from **academic session 2022-23**

[BoS shall decide POs, PSOs, and COs, and their mapping, the course code (for example C010506T: Commerce/Commerce/Fifth semester/ 6<sup>th</sup> paper/ Research Project), subject, course title, no of lecture hours as per the content in each unit, suggested readings etc.....as per the NEP-2020. For university faculty codes, subject codes in each faculty, a list is also attached as annexure 1.]

**Subject prerequisites:** To study the M.Sc.(Ag) **Animal husbandry and Dairying**

**Programme outcomes (POs):** .....

PO1 Students get proficiency in Animal Husbandry

PO2 Students get proficiency in Dairy Technology

PO3 Students learn Research methodology in Animal Husbandry and Dairy Technology

**Programme specific outcomes (PSOs):**.....

PSO1: Students get proficiency in Animal Husbandry

PSO2: Students get proficiency in Dairy Technology

PSO3: Students learn Research methodology in Animal Husbandry and Dairy Technology

List of all papers of Pre-Ph.D. course work or Post graduate diploma in Research (PGDR)

Year	Sem	Course Code	Course Title	Theory/ Research	Credit	Max. Marks
6	XI	D100101T	Animal Science	Theory	6	100 [25(CIE)+75(UE)]
		D100102T	Dairy Technology	Theory	6	100 [25(CIE)+75(UE)]
		D100103T	Research Methodology, Research Publication Ethics and Computer Applications	Theory	4	100 [25(CIE)+75(UE)]
		D100104R	Research Project	Research	-	100 [25(CIE)+75(UE)]

### **Credit system:**

- A four (4) credit theory course/paper will have four Lectures/periods (of one hour) in a week. In one full semester the course will be covered in 60 Lectures.

- Similarly, a six (6) credit theory course/paper will have six Lectures/periods (of one hour) in a week. In one full semester the course will be covered in 90 Lectures.

#### **Continuous Internal Evaluation (CIE) of 25 marks:**

- Continuous internal evaluation will be performed by the teacher/ course coordinator concerned.
- CIE shall be 25% of total assessment in a Theory paper and research project.
- 25 marks shall be distributed as 5 marks for attendance, 5 marks for presentation and assignment and remaining 15 marks for class test.

#### **Marking system:**

- All papers will have a total maximum mark of 100, including both CIE and University Examination (UE). Maximum marks of 25 will be allotted to CIE and 75 to UE in a theory paper/ research project.
- The CIE of the research project shall be evaluated by the research supervisor and co-supervisor (if any).
- 75 marks of **research project** shall be distributed as 50 marks (project work and presentation) and a viva voce of 25 marks.
- The evaluation (Max Marks 75 UE) of the research project shall be done by internal examiner/s (Supervisor and Co-supervisor (if any)) and one external examiner appointed by the University.

#### **Research Project Submission:**

- The evaluated research project report in two sets of hard copy (spiral binding) must be prepared. One copy of it shall be submitted to the university if it demands. A second copy of the evaluated research project report must be in the records of the college/research centre.
- The format of university Ph.D. thesis writing guidelines can be used as format of Research project writing guidelines.

<b>Programme:</b> Post graduate diploma in Research (PGDR)	<b>Year:</b> six (6)	<b>Semester:</b> XI
<b>Subject : Animal husbandry and Dairying</b>		

<b>Course Code:</b> D100101T	<b>Course Title:</b> Animal Science	
<b>Course Outcomes ( COs)</b>		
CO1: Students learn Research methodology in Animal Husbandry		
CO2: Students learn Research methodology in Animal Nutrition		
CO3 Students learn Research methodology in Poultry		
<b>Credits: 6</b>	<b>Core Compulsory</b>	
<b>Max. Marks: 25 (CIE) + 75(UE)</b>	<b>Min. Passing marks: 55</b>	
<b>Total number of lectures:</b> Lectures-Tutorial-Practical (6 hours in a week) L-T-P: 6-0-0(90 hr#)		
<b>Unit</b>	<b>Topics</b>	<b>No. Of Lecture Hrs.</b>
<b>I</b>	<b>Animal Nutrition</b> Ruminants' vs non ruminants' nutrition, evaluation of feed in relation to protein and energy value, Weende vs Soest method of feed analysis, artificial rumen experimentation in-vivo and in- vitro studies..Elementary idea of digestivsystem of ruminants and non ruminant animals.	<b>15</b>
<b>II</b>	<b>Feeding :</b> Classification of animal feed and evaluation of feeding standards, their merits, demerits and applicability under Indian condition. Feed and ration requirement for different types of animal according to works	<b>15</b>
<b>III</b>	<b>Animal breeding</b> Genetics and its importance in animal breeding, qualitative and quantitative heredity, gene frequency and factor affecting to its method and system of breeding and its importance in improvement of farm animal	<b>15</b>
<b>IV</b>	<b>Anatomy and Physiology:</b> External and internal features of the ruminant, non ruminant and chickens( digestiveand reproductive systems) formation and structure of the eggs. Herd health management and vaccinationfarm animal	<b>18</b>

<b>V</b>	<b>Incubation and Brooding</b> Incubation: selection, handling and care of hatching eggs, natural and artificial incubation, type of incubators, embryo mortality and its causes. Brooding of Chicks: Brooding requirements, natural and artificial brooding, Care and management during brooding, types of brooders used and their relative importance. Feeding Principles and Practices: Requirement of nutrients for different age groups of Chickens and their sources in the ration composition.	15
<b>VI</b>	<b>Management of Poultry house</b> Housing, Equipments and Management: Housing system, requirement of house for poultry, space requirement for different categories of birds, equipments required in a poultry house, lighting arrangement for poultry.	12

# One credit is equivalent to 15 lecture hours as per NEP norms in theory classes. Number of hours in each unit 15 hours may vary as per the content of the unit.

**Suggested Readings:**

1. Author Sir name, Initials, "Book Title", Publisher name, City/country of publication, Year of publication. Edition No. if any.
2. NSR Sastry&CK Thomas , livestock production & management. kalyani pub  
NANAK SINGH Animal nutrition aman pub  
A text book of animal nutrition dr d.n. verma
3. Suggestive digital platforms web links

<https://www.>

Suggested Continuous Evaluation Methods: .....

Course prerequisites: To study this course, a student must have had the subject .....

Suggested equivalent online courses: .....

Further Suggestions: .....

<b>Programme:</b> Post graduate diploma in Research (PGDR)	<b>Year:</b> six (6)	<b>Semester:</b> XI
<b>Subject: Animal husbandry and Dairying</b>		
<b>Course Code:</b> D100102T	<b>Course Title:</b> Dairy Technology	
<b>Course Outcomes ( COs)</b>		
CO1: Students get proficiency in Dairy Technology CO2: Students get proficiency in milk product and milk processing CO3: Students get proficiency in Adulteration in milk and milk products		
<b>Credits: 6</b>	<b>Core Compulsory</b>	
<b>Max. Marks: 25 (CIE) + 75(UE)</b>	<b>Min. Passing marks: 55</b>	
<b>Total number of lectures:</b> Lectures-Tutorial-Practical (6 hours in a week) L-T-P: 6-0-0      (90 hr#)		
<b>Unit</b>	<b>Topics</b>	<b>No. Of Lecture Hrs.</b>
<b>I</b>	<b>Market milk technology</b>  Definition and chemical composition milk, components of milk, factors affecting composition of milk, role of milk constituents, physic-chemical properties of milk, pasteurization of milk, cleaning and sanitization of dairy equipments, cooling and transportation of milk	15
<b>II</b>	<b>Technology of special milk</b>  Homogenized milk, flavoured milk, standardized milk, toned milk double toned milk, humanized milk, reconstituted and recombined milk	15
<b>III</b>	<b>Technology of fat rich milk products</b>  Introduction, definition, composition, Manufacture of cream, butter, ghee and butter oil	15

IV	<b>Technology of indigenous dairy products</b> Introduction, comparison with western dairy products, manufacture of khoa, rabri, dahi, shrikhand, paneer, chhan and kulfis	18
V	<b>Technology of cheese</b> Introduction, definition, classification, composition, food and nutritive value, manufacture of cheddar cheese and cottage cheese	15
VI	<b>Adulteration in milk and milk products</b> Definition, common adulterants of milk and ghee, methods of detection of adulteration in ghee and milk	12

# One credit is equivalent to 15 lecture hours as per NEP norms in theory classes. Number of hours in each unit 15 hours may vary as per the content of the unit.

**Suggested Readings:**

1. Author Sir name, Initials, "Book Title", Publisher name, City/country of publication, Year of publication. Edition No. if any.
2. **S kumar De** outlines of dairy technology, j.prasad dairy science, j.prasad animal husbandry and dairy science
3. Suggestive digital platforms web links

<https://www.>

Suggested Continuous Evaluation Methods: .....

Course prerequisites: To study this course, a student must have had the subject .....

Suggested equivalent online courses: .....

Further Suggestions: .....

<b>Programme:</b> Post graduate diploma in Research (PGDR)	<b>Year:</b> six (6)	<b>Semester:</b> XI
<b>Subject:.....(to be filled by BOS)</b>		
<b>Course Code:</b> D100103T	<b>Course Title:</b> Research Methodology, Research Publication Ethics and Computer Applications	
<b>Course Outcomes ( COs)</b>		
<p><b>CO1:</b> With the help of this course, students will be able to decide the research field, topic, design, and pros and cons of research, sampling, and data collection techniques.</p> <p><b>CO2:</b> The student will be able to understand the research process and acquire the skill of writing research articles.</p> <p><b>CO3:</b> The course will enable you to execute the best practices, morals, and ethical values in scientific conduct and avoid publication misconduct.</p> <p><b>CO4:</b> With the help of this course, students will be able to learn about the standards of journals for good-quality publications of their research work.</p> <p><b>CO5:</b> After this course, the students will be able to learn how to use computers and different application software for manuscript writing.</p> <p><b>CO6:</b> This course will enable the students to learn about reference management and the maintenance of academic integrity using scientific tools. They will be familiar with the protection of the machines from computer hazards.</p>		
<b>Credits: 4</b>	<b>Core Compulsory</b>	
<b>Max. Marks: 25</b> (CIE) + 75(UE)	<b>Min. Passing marks: 55</b>	
<b>Total number of lectures:</b> Lectures-Tutorial-Practical (4 hours in a week) L-T-P: 4-0-0 <span style="float: right;"><b>(60 hr)</b></span>		
<b>Unit</b>	<b>Topics</b>	<b>No. Of Lecture Hrs.</b>
<b>I</b>	<b>Research Methodology</b> Definition, and Objectives, Motivation and Significance of Research, Types of Research, Truth and Facts of Research, Similarity and Contrast in Literary Research and Scientific Research, Research and Criticism, Research Problem and Research Design, Sampling Design and Methods of Data Collection.	<b>12</b>
<b>II</b>	<b>Research standards:</b> Layout of the Research Report, Research Process: subject Selection, Outline of the Research, Review of Literature, Material Collection; Testing and Classification, Analysis, Discussion and Conclusions, Precautions in Writing Synopsis/Research Paper/Thesis/Research Report.	<b>12</b>

<b>III</b>	<b>Philosophy, Ethics, Scientific Conducts and misconduct</b>  Moral Philosophy, Nature of Moral Judgments and Reactions, Publication Ethics, Best Practices/Standards Setting Initiatives and Guidelines: Committee on Publication Ethics (COPE), World Association of Medical Editors (WAME) etc., Intellectual Honesty and Research Integrity: Falsification, Fabrication and Plagiarism (FFP), Open Access Publishing, and Publication Misconduct.	<b>08</b>
<b>IV</b>	<b>Databases and Research Metrics</b> Databases: Indexing Databases, Citation Databases: Web of Science, Scopus etc., Research Metrics: Impact Factor of Journal as Per Journal Citation Report, SNIP, SJR, IPP, Cite Score; Metrics: h-Index, g-Index, i-10 Index, and Altimetric.	<b>08</b>
<b>V</b>	<b>Fundamentals of Computers and application Softwares</b> Types Of Computers, Computer Peripherals and internal component, Types of Operating Systems, Web Browser, Web Search Engine, Spreadsheet Processing, Presentation (MS PowerPoints Preparation or Beamer or Libre Office (Optional), Project/Thesis/Report writing, Using MS-Word or LaTeX or LibreOffice documentation style Labelling, References Style, Footnotes etc.	<b>12</b>
<b>VI</b>	<b>Scientific Softwares</b> Use of Reference Management Software Like Mendeley, Zotero, Reference Manager, Endnote, Authorea Etc. Anti-Plagiarism Software Like Turnitin, iAuthenticate, Urkund, Ebooks and Virtual Library, UGC-Infonet, Computer Hazards and Security	<b>08</b>

#### **Suggested Readings:**

1. C.R. Kothari, *Research methodology Methods and Techniques*, 4<sup>th</sup> Edition, New Age International (P) Ltd. Publisher, 2014.
2. W. Creswell, *Research Design, Qualitative, Quantitative and mixed method approaches*, 3rd Edition, Sage Publications, Inc.
3. D.B. Resnik, (2011) What is ethics in research & Why is it important. National institute of Environmental Health Science, 1-10 Retrieved from <https://www.niehs.nih.gov/research/resources/bioethics/whatis/index.cfm>
4. Indian National Science Academy (INSA), Ethics in Science Education, Research and Governance (2019), ISBN:978-81-939482-1-7. [https://www.insaindia.res.in/pdf/Ethics\\_Book.pdf](https://www.insaindia.res.in/pdf/Ethics_Book.pdf)
5. Reema Thareja (2019) Fundamentals Of Computers (2<sup>nd</sup> Edition), Oxford University Press

6. Microsoft Office 365 : A complete Guide to Master Word, Excel, and PowerPoint 365 for Beginners, Matt Vic
7. Leslie Lamport, LaTeX, A Document Preparation System, 2<sup>nd</sup> Edition, Addison-Wesley Professional Publisher, July, 1994.
8. Latex tutorials <https://www.tug.org/twg/mactex/tutorials/ltxprimer-1.0.pdf>
9. Libre Office tutorial: [www.documentation.libreoffice.org/en/english-documentation](http://www.documentation.libreoffice.org/en/english-documentation)

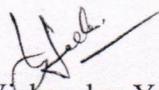
Suggested equivalent online courses: <https://epgp.inflibnet.ac.in/>**Error! Hyperlink reference not valid.**

<b>Programme:</b> Post graduate diploma in Research (PGDR)	<b>Year:</b> six (6)	<b>Semester:</b> XI
<b>Subject: Animal husbandry and Dairying</b>		
<b>Course Code</b> D100104R	<b>Course Title:</b> Research Project (Thesis)	
<b>Course Outcomes (COs) :</b>		
Outcomes will be based on synopsis submitted by students		
<b>Credits:</b> Non -Credit	<b>Core Compulsory</b>	
<b>Max. Marks:</b> 25 (CIE) + 75(UE)	<b>Min. Passing marks:</b> 55	

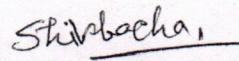
**Suggested Readings:** ( To be suggested by Concerned BoS)

Suggested equivalent online courses: ( To be suggested by Concerned BoS)

Further Suggestions: ( To be suggested by Concerned BoS)



Dr Vishnudev Yadav  
Convenor



Dr Shiv Bachan  
Subject Expert

**The format of the question paper and evaluation will be as follows –**

The duration of each question paper is 3 hours

<b>Types of Question</b>	<b>Total No of Questions</b>	<b>Questions to be Attempted</b>	<b>Maximum Marks = 75 (UE) (Questions x marks)</b>
Very Short Answer Type Questions (50 words)	10	10	$10 \times 2 = 20$
Short Answer Type (200 words)	8	5	$5 \times 7 = 35$
Longs Answer Type (500 words)	4	2	$2 \times 10 = 20$
			= 75 (Maximum Marks)

**10-point grading system for evaluation of the Pre-Ph.D. course work**

As per the UP GOs 1567/-3-2021-16 (26)/2011 TC dated 13 July 2021, 401/-3-2022, dated 09 Feb. 2022, and 1032/-03-2022- 08(35)/2020, dated 20 April 2022 regarding NEP-2020, the grading system for the Pre-Ph.D. course work shall be followed as given in table -1

**Table-1**

<b>Letter Grade</b>	<b>Details</b>	<b>Limit of Marks</b>	<b>Grade Point</b>
O	Outstanding	91-100	10

A+	Excellent	81-90	9
A	Very Good	71-80	8
B+	Good	61-70	7
B	Above Average	55-60	6
F	Fail	<55	0
AB	Absent	Absent	0
Q	Qualified		
NQ	Not Qualified		

In pre-Ph.D. course work, there is a mandatory research project that is qualifying in nature. This research project shall be **an non-credit course**. The letter grade for the research project will be Q or NQ. The grade of research project will not be included in the computations of the CGPA.

### Computation of CGPA:

Calculations for SGPA and CGPA shall be followed as given table 2:

**Table 2**

For $j^{\text{th}}$ Sem. $\text{SGPA (S}_j\text{)} = \frac{\sum C_i \cdot G_i}{\sum C_i}$	Here: $C_i$ = number of credits of the $i^{\text{th}}$ course in the $j^{\text{th}}$ semester $G_i$ = grade point scored by the student in the $i^{\text{th}}$ course in $j^{\text{th}}$ semester
$\text{CGPA} = \frac{\sum C_j \cdot S_j}{\sum C_j}$	Here: $S_j$ = SGPA of the $j^{\text{th}}$ semester $C_j$ = total number of credits in the $j^{\text{th}}$ semester

### Allocation of CGPA Into Division:

The allocation of CGPA into division in pre-Ph.D. course work follows as given in Table 3:

**Table 3**

Division	CGPA
First	Greater than or equal to 6.5 and less than or equal to 10
Second	Greater than or equal to 5.5 and less than 6.5

**Annexure -1**