OFFICE OF THE DEAN : POST GRADUATE STUDIES

No.: PGS/SA/3093

Dated : Dec. 06 , 2019

MEETING NOTICE

All Members of the P.G. Faculty

The I/2019 meeting of the P.G. faculty will be **held on December 11, 2019 at 3:30 P.M. in the Conference Hall of College of Agriculture.** You are requested to kindly make it convenient to attend the meeting.

The following shall be the agenda:

Item No.	Detail
1.	Confirmation of the minutes of II/2018 meeting held on November 28, 2018 (minutes have already been circulated) which may kindly be brought with you.
2.	Review of action taken (II/2018 meeting).
3.	Accreditation of P.G. Faculty members for Post Graduate Research.
4.	Start of Ph.D. degree programme in Statistics/Agricultural Statistics
5.	Start of two new courses viz. TCE-614 Dynamics of Structures [3(3-1-0)] & TCE-615 [3(3-1-0)] Seismic Analysis of Structures for M.Tech. (Structural Engineering) degree programme
6.	Admission in M.Sc. Agriculture (Biotechnology) through University Entrance Examination
7.	Admission Policy 2020-21 for MBA programme
8.	Admission policy for 2020-21 for others PG programme of the University
9.	Replacement of two core courses of M.Sc. Agricultural Statistics/Statistics
10.	Election of Secretary, Post Graduate Faculty
11.	Any other item with the permission of Chair

The detailed agenda is placed on the University website www.gbpuat.ac.in.

(Jyothi Prasad) 6/12/19.
Secretary, P.G. Faculty

Copy to:

1. All Deans of the Colleges with the request to please arrange to circulate among Head of the Departments
2. Registrar
3. Coordinator Admission
4. Director Research/Extension/Communication
5. Head, Agricultural Communication with the request to please arrange P.A. system during the meeting.
6. P.S. to V.C. for kind information of Hon'ble Vice-Chancellor please.

Agenda for P.G. Faculty Meeting (I/2019) to be held on December 11, 2019 at 3:30 P.M. in the Conference Hall, College of Agriculture

Item No. 1	:	Confirmation of the minutes of II/2018 meeting held on November 28, 2018 (minutes have already been circulated) which may kindly be brought with you.
Item No. 2	:	Review of action taken (II/2018 meeting).
Item No. 3	:	Accreditation of P.G. Faculty members for Post Graduate Research.
Item No. 4	:	Start of Ph.D. degree programme in Statistics/Agricultural Statistics
Item No. 5	:	Start of two new courses viz. TCE-614 Dynamics of Structures [3(3-1-0)] & TCE-615 [3(3-1-0)] Seismic Analysis of Structures for M.Tech. (Structural Engineering) degree programme
Item No. 6	:	Admission in M.Sc. Agriculture (Biotechnology) through University Entrance Examination
Item No. 7	:	Admission Policy 2020-21 for MBA programme
Item No. 8	:	Admission policy for 2020-21 for others PG programme of the University
Item No. 9	:	Replacement of two core courses of M.Sc. Agricultural Statistics/Statistics
Item No. 10	:	Election of Secretary, Post Graduate Faculty
Item No. 11	:	Any other item with the permission of Chair

Item No. I/2019:1 Confirmation of the minutes of II/2018 meeting held on November 28, 2018

No comment/modification the minutes of I/2018 meeting held on May 14, 2018 has been received, therefore, the minutes as circulated were confirmed.

Item No. I/2019:2 Review of action taken (II/2018 meeting held on 28-11-2018)

II/2018:3 : Accreditation of P.G. Faculty members for Post Graduate Research.

Accreditation of 05 faculty members for Master's research and 10 faculty members for Ph.D. research was approved by the Academic Council under Item No.: 2019:386:22 and implemented.

II/2018:4. : Start of M.Tech. (Civil Engineering) with major Engineering in Department of Civil Engineering in Transportation

In compliance to decision of P.G. Faculty in its II/2018 meeting held on Nov. 28, 2018, the proposal was referred back to Head, Civil Engineering for resubmission. The same has not been received till date.

II/2018:5. : Admission Policy (2019-20) MBA programme

Admission Policy (2019-20) for MBA proramme as provided by Dean, CABM was approved by the Academic Council under Item No.: 2019:386:23 in its 386th meeting held on Feb. 05, 2019.

II/2018:6 : Admission policy for 2019-20 for other PG programmes of the University

Admission Policy (2019-20) for other programmes of the University has been approved by the Academic Council in its 386th meeting held on Feb. 05, 2019 under item no.: 2019:386:23.

II/2018:7(1) : Start of Ph.D. degree programme with major in Statistics in Department of Mathematics, Statistics & Computer Science

In compliance to decision of P.G. Faculty in its II/2018 meeting held on Nov. 28, 2018, the proposal was referred back to Head, Mathematics, Statistics & Computer Science for resubmission. The same as re-submitted by Head, MSCS is being placed in this meeting of P.G. Faculty.

II/2018:7(2) : Amendment in the title of M.Sc. Ag. (Horticulture) and Ph.D. (Horticulture) degree

Amendment in the title of M.Sc. Ag. (Horticulture) to M.Sc. Ag. Horticulture (Fruit Science) and Ph.D. (Horticulture) to Ph.D. Horticulture (Fruit Science) has been approved by Academic Council under Item No.: 2019:386:24 in its 386th meeting.

Item No. I/2019:3 Accreditation of Faculty Members for Post Graduate Research

Proposal from the following faculty members were received for accreditation. These proposals were discussed and examined by the Accreditation Committee in its meeting held on October 15, 2019 at 3:00 P.M.

The minutes of the meeting of Accreditation Committee alongwith brief bio-data of faculty members is annexed. The Accreditation Committee has recommended that the faculty members as mentioned below may be accredited for P.G. research in the programme noted against each.

Sl. No.	Name of Faculty Member	Designation	Department	Accreditation Level
1.	Dr. Divya Singh	Asstt. Prof.	Family Resource Mgt.	Master's
2.	Dr. Sandhya Rani	Asstt. Prof.	Family Resource Mgt.	Master's
3.	Dr. Sanjay Kumar	Assoc. Director	Agronomy (KVK, Gwaldam)	Master's
4.	Dr. S.P. Gangwar	J.R.O.	Soil Science	Master's
5.	Dr. Dharmendra Kumar Shukla	J.R.O.	Agronomy	Ph.D.
6.	Dr. Ravi Kiran	Assoc. Prof.	Agrometeorology	Ph.D.
7.	Dr. M.K. Karnwal	Assoc. Prof.	Genetics & Plant Breed.	Ph.D.
8.	Dr. Anil Kumar	S.R.O.	Genetics & Plant Breed.	Ph.D.
9.	Dr. Swati	S.R.O.	Genetics & Plant Breed.	Ph.D.
10.	Dr. Pratibha	Asstt. Prof.	Horticulture	Ph.D.
11.	Dr. Navin Singh	S.R.O.	Horticulture	Ph.D.
12.	Dr. Ajeet Pratap Singh	S.R.O.	Soil Science	Ph.D.
13.	Dr. Alka Verma	J.R.O.	Vegetable Science	Ph.D.
14.	Dr. Ravi Pratap Singh	Assoc. Prof.	Farm Mach. & Power Engg.	Ph.D.
15.	Dr. Arvind Singh Tomar	Asstt. Prof.	Irrigation & Drain. Engg.	Ph.D.
16.	Dr. Mridula Sharma	Asstt. Prof.	Vety. Gyn. & Obstetrics	Ph.D.
17.	Dr. Sameena Mehtab	Asstt. Prof.	Chemistry	Ph.D.
18.	Dr. Ravendra Kumar	Asstt. Prof.	Chemistry	Ph.D.
19.	Dr. B.C. Chanyal	Asstt. Prof.	Physics	Ph.D.
20.	Dr. Reetika Bhatt	Asstt. Prof.	CABM	Ph.D.
21.	Dr. Ratnesh Prasad Srivastava	Asstt. Prof.	Information Technology	Ph.D.

The P.G. Faculty is requested to consider the above proposal for accreditation.

Dean, PGS

BRIEF BIO-DATA FOR MASTER'S/PH.D. ACCREDITATION

(350 copies are required on one page, on one side)

1.	Name	:	Dr. Divya Singh
2.	Designation	:	Assistant Professor
3.	Date of birth	:	08/07/1987
4.	Department	:	Family Resource Management
5.	Educational Qualification	:	Ph.D
6.	Field of Specialization	:	Family Resource Management
7.	Experience as Faculty member:		
	(i) Outside the University	:	
	(ii) (a) In the University (b) On present post	:	w.e.f. 21/11/2015 to contd. w.e.f. 21/11/2015 to contd.
8.	i. Publications:		
	(a) No. of Research papers published	:	13
	(b) No. of articles published	:	12
	(c) Books Chapters in books	:	3
	(d) Other publications, if any	:	Manuals: 2
	ii. Radio Programmes	:	0
	iii.Seminars Conferences/Workshop	:	Participated :10
	iv. Awards:	:	4
	v. Editorial board member	:	0

9.Details of courses taught:

b. **Under Graduate Level:**

S.N	Course No.	Title of Course	Credits	Credit Hours
	Semester II, 2016			
1	**Semester II, 2015**			
2	HRM-427	Computer Aided Interior Designing	4 (0-0-4)	8
3	HRM-431	Fittings and Fixtures	3(2-0-1)	4
4	HRM-433	Professional Practices	3(2-0-1)	4
	Semester I, 2016			
1	HRM-421	Traditional and Contemporary Interior	4 (2-0-2)	6
2	HRM-429	Scale and Perspective Drawing	4 (1-0-3)	7
3	HIT-499	In Plant Training	02	
	Semester II, 2017			
1	HRM-431	Fittings and Fixtures	3(2-0-1)	4
2	HRM-433	Professional Practices	3(2-0-1)	4
3	HRM-428	Interior Design Project Management	3 (0-0-3)	6
4	HRM-323	System Dynamics and Management of Resources	2(2-0-0)	2
	Semester I, 2018			
1	HRM-421	Traditional and Contemporary Interior	4 (2-0-2)	6
2	HRM-429	Scale and Perspective Drawing	4 (1-0-3)	7
SN	**Semester II, 2018**			
1.	HRM-431	Fittings and Fixtures	3(2-0-1)	4
	HRM-433	Professional Practices	3(2-0-1)	4
	HRM-428	Interior Design Project Management	3 (0-0-3)	6
	HRM-323	System Dynamics and Management of Resources	2(2-0-0)	2
		Total	50	74

10. **No. of Master's students guided (in case of Ph.D. research)** : **Not applicable**

Signature of staff member 21.9.19

Signature of Dean College Concerned 21.9.19

Dean, HSc

Signature of Head of the Deptt.

Professor & Head
College of Home Sc.
G. B. P. U. A. & T.
PANTNAGAR-263145

Signature of Dean PGS

DEAN, P.G.S.
23/9/19

BRIEF BIO-DATA FOR MASTER'S/PH.D. ACCREDITATION

(350 copies are required on one page, on one side)

1. **Name** : Dr. Sandhya Rani
2. **Designation** : Assistant Professor
3. **Date of birth** : 07/06/1988
4. **Department** : Family Resource Management
5. **Educational Qualification** : Ph.D
6. **Field of Specialization** : Family Resource Management
7. **Experience as Faculty member:**
   - (i) Outside the University : Nil
   - (ii) (a) In the University : w.e.f. 21/11/2015 to contd.
   - (b) On present post : w.e.f. 21/11/2015 to contd.
8. **i. Publications:** 07
   - (a) No. of Research papers published : 05
   - (b) No. of articles published : -
   - (c) Books/Chapters in books : 02
   - (d) Other publications, if any : -
   - **ii. Radio Programmes** : -
   - **iii.Seminars/Conferences/Workshop** : Participated (7)
   - **iv. Awards:** : 2
   - **v. Editorial board member** : -
9. **Details of courses taught:**

Under Graduate Level

S. No.	Course No.	Title of Course	Credits
1.	HRM/AEC-496	Entrepreneurship	4 (3-0-1)
2.	HRM-426	Management of Floor and Floor Coverings	4 (1-0-3)
3.	HRM-428	Interior Design Project Management	3 (0-0-3)
4.	HRM-323	System Dynamics and Management of Resources	2 (2-0-0)
5.	HRM-326	Housing and Space Management	3 (2-0-1)
6.	HRM-424	Interior Views and Designs	4 (0-0-4)
7.	HRM-325	Financial Management and Consumer Education	2 (2-0-0)
8.	HRM-427	Computer Aided Interior Designing	4 (0-0-4)
9.	HRM-431	Fitting and Fixtures	3 (2-0-1)
10.	HRM-421	Traditional and Contemporary Interiors	4 (2-0-2)
11.	HRM-382	Ergonomics and Appropriate Technologies	4 (2-0-2)

10. **No. of Master's students guided (in case of Ph.D. research): Not applicable**

Signature of staff member — 28.8.2019

Signature of Head of the Deptt. — Professor & Head, Dept. of F.R.M., College of Home Sc., G.B.P.U.A.&T., PANTNAGAR-263145

Signature of Dean College Concerned — 1.10.19 — Dean, HSc.

Signature of Dean PGS — DEAN, P.G.S. 07/10/19

BRIEF BIO-DATA FOR MASTER'S/PH.D. ACCREDITATION

(15 copies are required on one page, on one side)

1.	Name	:	Dr Sanjay Kumar
2.	Designation	:	Associate Director, Agronomy
3.	Date of birth	:	05th January, 1973
4.	Department	:	Agronomy (Krishi Vigyan Kendra)
5.	Educational Qualification	:	Ph.D Agronomy
6.	Field of Specialization	:	Sugarcane Agronomy
7.	Experience as Faculty member:		
	(i) Outside the University	:	w.e.f. to
	(ii) (a) In the University	:	w.e.f. 22.12.2004 to till date
	(b) On present post		w.e.f. 22.12.2016 to
8.	Publications:		
	(a) No. of Research papers published	:	40
	(b) No. of articles published	:	42
	(c) Books/Chapters in books	:	02
	(d) Other publications, if any	:	08

9. **Details of courses taught:**

Sl.No.	No. & Title of the course	Credit hrs.
	U.G. Level:	
i.		
ii.		
iii.		
iv.		
	P.G. Level:	
i.		
ii.		
iii.		
iv.		

10. No. of Master's students guided (in case of Ph.D. research) :

Name	ID.NO.	Thesis title	Year of completion
1.			
2.			
3.			

Signature of staff member

Signature of Head of the Deptt.
HEAD Agronomy 8/4/19

(J. Kumar) Dean, Agriculture 8/4/19
Signature of Dean College Concerned

Signature of Dean PGS

DEAN, P.G.S. 22/8/19

Office of the Dean, P.G. Studies
4980
Receipt no.
Date 2-7-19
Parbhani

BRIEF BIO-DATA FOR MASTER'S/Ph.D. ACCREDITATION

(15 copies are required on one page, on one side)

1.	Name	:	Dr.S.P. Gangwar
2.	Designation	:	Junior Research Officer
3.	Date of birth	:	30th May, 1962
4.	Department	:	Soil Science
5.	Educational Qualification	:	Ph.D. Soil Science
6.	Field of Specialization	:	Soil Microbiology/ Soil Fertility
7.	Experience as Faculty member:		
	(i) Outside the University	:	
	(ii) (a) In the University	:	w.e.f. 24.01.2006 to 27.02.2019 Res. & Extension (Res. & KVK, Lohaghat, Champawat)
	(b) On present post		w.e.f. 28.02.2019 join Department of Soil Science
8.	Publications:		
	(a) No. of Research papers published	:	07 published and 03 accepted
	(b) No. of articles published	:	26
	(c) Books/Chapters in books	:	01
	(d) Other publications, if any	:	Technical bulletin 08 & newsletters 03

9. Details of courses taught:

U.G. Level:

Sl. No.	No. & Title of the course	Credit hrs.
i.	**Soil Quality Analysis and Management**	**2(0-2)**

P.G. Level:

i.	**Management of Problematic Soils and Water**	**3(2-1)**

10. No. of Master's students guided (in case of Ph.D. research) NIL :

Name	ID.NO.	Thesis title	Year of completion
1.			

01.07.19
(S.P. Gangwar)
Signature of staff member

01/07/19
Signature of Head of the Deptt.
Head, Soil Science

27/7/2019
(J. Kumar)
Signature of the College Concerned
Dean, Agriculture

Signature of Dean PGS
DEAN, P.G.S.
22/8/19

SA.

DEAN, P.G.S.
02/07/19

BRIEF BIO-DATA FOR Ph. D ACCREDITATION

(10 copies are required on one page, on one side)

1. Name : Dr. DHARMENDRA KUMAR SHUKLA
2. Designation : Junior Research Officer (Agronomy)
3. Date of birth : 02-07-1974
4. Department : Agronomy
5. Educational Qualification : Ph. D, NET (Agronomy)
6. Field of Specialization : Weed control and nutrient management
7. Experience as Faculty Member :

	w.e.f.	to
(i) Outside the University	: NIL	
(ii) (a) in the University	: 25.09.2010	to continue
(b) On present post	: 25.09.2010	to continue

8. Publications: (List enclosed)

1. No. of Research papers published	24
2. Research paper in seminar/symposium/workshop etc.	17
3. Abstract published	10
4. No. of articles published	26
5. Chapters in books	02
6. Radio talk delivered	01
7. TV talk delivered	01

9. Details of courses taught:

a) Undergraduate level

SN.	Course No.	Title of course	Credits hrs.
1.	APA 101	Elementary Agriculture	3(2-0-3x1)
	APA 310	Rural Work Experience	-
2.	APA 311	Principles of Agronomy	3(2-0-3x1)
	CFA 315	Range Land Management	3(2-0-3x1)
3.	APA 315	Fundamentals of Agronomy	4(3-0-2x1)
4.	APA 317	Irrigation water management	3(2-0-3x1)
5.	APA 318	Rainfed Agriculture and watershed management	2(1-0-3x1)
6.	APA 319	Organic Farming	2(2-0-0)
7.	APA 351	Practical Crop Production	2(0-0-6x1)

b) Post graduate level

S. No.	Course No.	Title of course	Credits hrs.
1.	APS-401	Basics of Soil Science	3(2-0-3x1)
2.	APA-501	Modern concepts in crop production	4(3-0-3x1)
3.	APA 521	Agronomy of *kharif* crops	4(3-0-3x1)
4.	APA 522	Agronomy of *rabi* crops	4(3-0-3x1)
5.	APA-614	Soil conservation and watershed management	3(2-0-3x1)
6.	APA-600	Master's and Doctoral seminar I & II	1(1-0-0)
7.	APA-690	Master Thesis Research	

10. No. of Master's students guided (in case of Ph. D. research) : 03

S. No.	Name of students	Id. No.	Thesis title	Year
1.	Mr. Mohd. Hasanain	49542	Studies on nutrient and weed management practices in summer mungbean (*Vigna radiata* (L.) Wilczek) in *tarai* region of Uttarakhand	2016
2.	Ms. Prerna Sundriyal	51083	Performance of mungbean (*Vigna radiata* (L.) Wilczek) genotypes under different foliar nutrition in *tarai* region of Uttarakhand	2017
3.	Mr. Kamal Kant Yadav	52546	Performance of promising pigeonpea (*Cajanus cajan* (L.) Millsp) genotypes at different rates of fertilisation in tarai region of Uttarakhand	2019

Signature of staff member

Signature of Head of the Deptt.

Head
Department of Agronomy

Signature of Dean College Concerned

Act Dean, Agriculture
24/9/19

Signature of Dean PGS

DEAN, P.G.S.
25/9/19

CAG/Agromet/359
Dated 14/10/19

BRIEF BIO-DATA FOR MASTER'S/PH.D. ACCREDITATION

(15 copies are required on one page, on one side)

1	Name	Dr. RAVI KIRAN
2	Designation	Associate Professor
3	Date of birth	01.05.1973
4	Department	Agrometeorology
5	Educational Qualification	Ph D Agricultural Meteorology
6	Field of Specialization	Agrometeorology
7.	Experience as Faculty member	
	(i) Outside the University	w e f 05 05 2003 to 27 02 2006
	(ii) (a) In the University	w e f 02 03 2006
	(b) On present post	w e f 05 05 2015
8	Publications	
	(a) No of Research papers published	20
	(b) No of articles published	10
	(c) Books/Chapters in books	nil

9 **Courses Taught**

a. **Post Graduate Level:**

S.No.	Course Title & Code	Credit Hours	Programme
1	Weather forecasting and Advisories (AAM-640N)	3	Ph D Degree
2	Applied Agricultural Climatology (AAM-515N)	3	Master Degree
3	Agricultural Meteorology (AAM-520N)	3	Master Degree
4	Introduction to Agrometeorology and Remote Sensing (AAM-315)	3	B Sc Agriculture
5	Weather forecasting and Agro-advisories (AAM-640N)	3	Ph D Degree
6	Work Programme (AWP-101)	1	Under Graduate
7	Strategic Use of Climatic Information (AAM-706)	3	Ph D Degree
8	Agricultural Meteorology(AAM-520N)	3	Master Degree
15	Climate Change and Sustainable Development (AAM- 701)	3	Ph D Degree
16	Crop Weather Models (AAM-630)	3	Master Degree

b. **Under Graduate Level:**

S.No.	Course Title & Code	Credit Hours	Programme
1	Introduction to Agrometeorology and Remote Sensing (AAM-315)	3	B Sc Agriculture
2	Work Programme (AWP-101)	1	Under Graduate

10 **STUDENTS GUIDED AT MASTER'S LEVEL**

Name of student	Course programme	Year of admission	ID No.
ManishaTamta	M Sc Ag (Agrometeorology)	2013-14	38866
Amit Kumar	M Sc Ag (Agrometeorology)	2013-14	38150
Adarsh Bahuguna	M Sc Ag (Agrometeorology)	2015-16	41551
Gaurav Chauhan	M Sc Ag (Agrometeorology)	2015-16	38123
Shweta Pokhariyal	M Sc Ag (Agrometeorology)	2016-17	50316
Mukta Nainwal	M Sc Ag (Agrometeorology)	2016-17	50353
Amit Biganwal	M Sc Ag (Agrometeorology)	2016-17	50342
P S Chauhan	M Sc Ag (Agrometeorology)	2017-18	41133

Signature of staff member

Signature of Head
Head of the Agrometeorology

Signature of Signature of Dean College Concerned

Acting Dean
College of Agriculture
14/10/19

Signature of Dean PGS

DEAN, P.G.S
15/10/19

BRIEF BIODATA FOR PH.D. ACCREDITATION

(15 copies are required on one page, on one side)

1	Name	:	Mukesh Kumar Kanwal
2	Designation	:	Associate Professor/SRO
3	Date of birth	:	21.09.1976
4	Department	:	Genetics & Plant Breeding
5	Educational Qualification	:	Ph.D. (Genetics & Plant Breeding with Mol. Biology & Biotechnology)
6	Field of Specialization	:	Plant Breeding
7	Experience as Faculty Member	:	14 Years
	(i) Out side the University	:	----
	(ii) (a) In the University	:	w.e.f. 17.08.2004
	(b) On present post	:	w.e.f. 17.08.2016 to till date
8	Publications	:	Thirty Four (34)
	(a) No. of full length research papers published	:	Sixteen (16)
	(b) No. of articles published	:	Six (6)
	(c) Books/Chapters in books	:	Nil
	(d) Other publications, if any	:	Nine (12) Abstract in Conferences/ Symposia etc
9	Details of courses taught		

S.N.	No. & Title of the course	Credit hrs.
	U.G. Level	
1	HBG-100 Elements of Genetics	3(2+1)
2	BBC-261 : Elementary Plant Biochemistry	3(2+1)
3	HPH-202 : Genetic Resources of Horticultural Crops	2(1+1)
4	HBB-301 : Biotechnology	2(1+1)
5	HPH-303 : Com. Seed Production of Horticultural crops Including MAP	3(2+1)
6	BBC-105 : Elementary Biology	4(3+1)
7	HMP-351 : Practical Horticulture Production (Veg. Crops)	1(0+1)
8	AGP-301 : Elements of Genetics	3(2+1)
9	AGP-302 : Introduction to Plant Biotechnology	3(2+1)
10	AGP-303 : Introduction to Plant Breeding	3(3+0)
11	AGP-356 : Seed Production Plant Breeder and Farmer's Rights	3(1+2)
12	AGP 310 : Breeding Field Crop	3(2+1)
13	AGP-312 : Fundamental of Plant Breeding	3(2+1)
14	AGP/ BBC- 218 : Fundamental of Biochemistry and Plant Biotechnology	3(2+1)
15	NSS-201 National Service Scheme	2(0+2)
16	AWP-300 Work Programe	2(0+2)
	Diploma in Commercial Horticulture Management (Two Year Programme)	
1	UPH-112 Basics of Seed Production	2(1+1)
2	UPH-221 : Com. Seed Production of Horticultural Crops including MAP	3(1+2)
3	UPH-110 : Educational Tour	1(0+1)
	P.G. Level	
1	AST-704 : Seed Laws and DUS Testing for Plant Variety Protection	3(2+1)
2	AGP 520 : Breeding Field Crop I	3(2+1)
3	AGP 560 : Advance Plant Breeding	3(3+0)
4	AGP 615 : Intellectual Property Rights	2(2+0)

10. No. of Master's students guided (in case of Ph.D. research) : Ten (10)

Sl.No.	Name	ID. NO.	Thesis Title	Year of completion
1.	Mr. Aditya Bora	42840	"Estimates of Genetic Variability and Divergence for Seed yield and Qualitative characters in Advance Breeding Lines of Rice (*Oryza sativa L.*)	2014
2.	Miss Himani	42543	Studies on Seed yield maximization of PSD-3 over the different environmental condition in rice (*Oryza sativa* L.) (Tentative)	2014
3.	Mr. Anurag Tripathi	44100	"Morphological and Molecular Characterization of Advanced Breeding Line of Rice (*Oryza sativa* L.) (Tentative)	2014
4	Mr. Mahendar Singh Bhinda	45667	"Genetic diversity analysis for yield contributing and quality traits in advance breeding lines of rice (*oryza sativa* L.)".	2015
5	Mr. Ankit Maheshwari	48110	"Estimation of genetic diversity and character association for quality, yield and yield contributing traits in germplasm of rice (*oryza sativa* L.)"	2016
6	Vertika Bodhlakoti	41399	"Studies on genetic variability, combining ability and heterosis in advanced breeding lines in rice (Oryza sativa L.)"	2017
7	Miss Madubala Kumanchali	51173	"Studies on correlation, heterosis and combining ability for yield and quality traits in basmati rice (*Oryza sativa* L.)"	2018
8	Mr. Dhanraj Meena	51151	"Studies on heterosis and combining ability analysis using Line x Tester mating design in rice (*Oryza sativa* L.)"	2018
9	Navneet Maitham	52505	"Estimation of Genetic Variability, Heritability and Genetic Divergence for seed Yield and quality traits in advance breeding lines of rice (*Oryza sativa* L.)	2019
10	Triptee Mishra	52714	Studies on genetic parameter of yield traits in Soybean	Pursuing

Signature of Staff Member

Signature of Head of the Department

Prof. & Head
Genetics & Plant Bree

Signature of Dean College Concerned

Acting Dean
College of Agriculture

Signature of Dean PGS

DEAN, P.G.S.
24/9/19

BRIEF BIODATA FOR Ph.D. ACCREDITATION

(350 copies are required in one page on one side)

1. **Name** : DR. ANIL KUMAR
2. **Designation** : Senior Research Officer
3. **Date of birth** : 07.08.1969
4. **Department** : Genetics and Plant Breeding
5. **Educational Qualification** : Ph.D.
6. **Field of Specialization** : Wheat Breeding and Quality
7. **Experience as Faculty Member**
   - (i) Out side the University : w.e.f - to -
   - (ii) (a) In the University : w.e.f 18 May, 2006 to Till date
   - (b) On present post : w.e.f 18 May, 2018 to Till date
8. **Publications:**
   - (a) No. of research papers Published 30
   - (b) No. of articles Published 09
   - (c) Books/chapters in books 01 book and 8 chapters
   - (d) Other publications-Abstracts 10

9. Details of courses taught

Sl. No.	Course No.	Title of the course	Credit Hours
a. Under Graduate Level:			
1.	ARE 390	Rural Agriculture Work Experience (RAWE)	18
2.	AGP 301	Elements of Genetics	3
3.	AGP 350	Seed Production & Technology	3
7.	AGP 311	Fundamentals of Genetics	3
b. Post Graduate Level:			
1.	AGP 630	Quality Breeding in Crop Plants	2
3.	AGP 630N	Breeding for Crop Quality	2
5.	AGP 622	Breeding for biotic and abiotic stress resistance	3

10. No. of Master's students guided (in case of Ph.D. research) : 10

Sl. No.	Name	Id. No.	Thesis Title	Year of completion
1.	Ms. Aneeta Yadav	30948	Stability analysis for yield, its components and quality traits in bread wheat (*Triticum aestivum* L. em. Thell)	2010
2.	Ms. Ankita Singh	32239	Line x tester analysis for yield, its components and quality traits in bread wheat (*Triticum aestivum* L. em. Thell)	2011
3.	Mr. Gaurav Joshi	33144	Genetic diversity and character association analysis in indigenous germplasm of bread wheat (*Triticum aestivum* L. em. Thell)	2013
4.	Mr Harshwardhan	36062	Diallel analysis for yield and quality traits in bread wheat (*Triticum aestivum* L. em. Thell)	2014
5.	Ms. Tabassum	45477	Combining ability and heterosis studies for yield and its components in bread wheat (*Triticum aestivum* L. em. Thell)	2016
6.	Ms. Laxmi Pangti	45483	Genetic diversity and stability analysis for yield, its components and quality traits in bread wheat (*Triticum aestivum* L. em. Thell)	2017
7.	Ms. Neha Joshi	47000	Characterization of germplasm for yield, its components and quality traits in wheat (*Triticum aestivum* L. em. Thell)	2017
8.	Ms. Anjali Joshi	41496	Diallel analysis for yield, its components and quality traits in bread wheat (*Triticum aestivum* L. em. Thell)	2017
9.	Ms. Sakshi Kashyap	50967	Combining ability and heterosis studies for various qualitative and quantitative traits in bread wheat (*Triticum aestivum* L. em. Thell)	2018
10.	Babita Kohli	44399	"Genetic studies on combining ability and heterosis for grain yield and its components in bread wheat (*Triticum aestivum* L. em. Thell) using diallel mating design"	2019

Signature of staff member

Signature of Head of the Deptt.

Prof. & Head
Genetics & Plant Breeding

(U. Kumar)
Dean, Agriculture
11/9/19

Signature of Dean College Concerned

Signature of Dean PGS

DEAN, P.G.S.
24/9/19

BRIEF BIO-DATA FOR MASTER'S/PH.D. ACCREDITATION

(15 copies are required on one page, on one side)

1.	Name	:	Dr. Swati
2.	Designation	:	Senior Research Officer (S.R.O.)
3.	Date of birth	:	27-03-1978
4.	Department	:	Genetics and Plant Breeding
5.	Educational Qualification	:	Doctorate (Ph.D.)
6.	Field of Specialization	:	Wheat and Barley Breeding
7.	Experience as Faculty member:		
	(i) Outside the University	:	
	(ii) (a) In the University	:	w.e.f. 17.05.2006 to Continue
	(b) On present post		w.e.f. 18.05.2018 to Continue
8.	Publications:		
	(a) No. of Research papers published	:	25
	(b) No. of articles published	:	06
	(c) Books/Chapters in books	:	01
	(d) Other publications, if any	:	15

9. Details of courses taught:

Sl.No.	No. & Title of the course	Credit hrs.
	U.G. Level:	
i.	AGP-301 Elements of Genetics	3(2-0-1*3)
ii.	AGP-302 Introduction to Plant Biotechnology	3(2-0-1*3)
iii.	AGP-311 Fundamental of Genetics	3 (2-0-1*3)
iv.	ARE-390 Rural Agriculture Work Experience- RAWE	4 (0-0-4)
v.	HBB-301 Biotechnology	3(2-0-1*3)
vi.	Fundamentals of Biochemistry and Plant Biotechnology	3(2-0-1*3)
	P.G. Level:	
i.	AGP-540 Cell Biology, Molecular Genetics and Gene Regulation	3(3-0-0)
ii.	AGP-530 Breeding Field Crops-II	2(1-0-1*3)
iii.	AGP-421 Principles of Plant breeding	3(3-0-0)
iv.	AGP-720 Advances in Plant Breeding Systems	2(2-0-0)

10. No. of Master's students guided (in case of Ph.D. research) : 11

Name	ID.NO.	Thesis title	Year of completion
E. Lamalakshmi Devi	39242	Line x tester analysis for quantitative traits in bread wheat (Triticum aestivum L.)	2011
Geeta Anand	33146	Studies on genetic divergence and correlation in indigenous germplasm of bread wheat (Triticum aestivum L.em. Thell)	2012
Mohammed Talha	42773	Genetic analysis of grain yield and its components with field and molecular screening for yellow rust resistance in bread wheat [Triticum aestivum L. em Thell]	2013
Trinetra Tewari	36059	Combining ability analysis for yield, yield components and screening for spot blotch (Bipolaris sorokiniana Sacc. In Borok. Shoem) resistance in bread wheat (Triticum aestivum L.em. Thell)	2014
Amarjeet Kumar	45612	Morphological, physiological and molecular characterization for heat tolerance traits in bread wheat (Triticum aestivum L.em. Thell)	2015
Sunaina Rani	38126	Genetic architecture of yield and some morphophysiological heat tolerance traits in Bread Wheat (Triticum aestivum L.em.Thell)	2015
Ms. Anjana Chauhan	47020	Genetic Analysis for grain yield and its components with phenotypic and molecular characterization for stripe rust resistance in bread wheat (Triticum aestivum L. em. Thell.)	2017
Mr. Kailash Chandra Tiwari	41377	Genetic Analysis of grain yield and its components in some elite genotypes of Malt Barley (Hordeum vulgare L.)	2017
Ms. Divya Chaudhary	50944	Genetic Architecture of Yield and its Attributes in Bread Wheat (Triticum aestivum L. em. Thell) under irrigated and rainfed conditions	2019
Mr. Kuldeep Nagar	52525	Deciphering the genetics of some quantitative traits in bread wheat (Triticum aestivum L.)	2019
Ms. Richa Dhyani	44358	Genetic insight in to yield and yield associated traits of wheat under two different water regimes	2019

Swati

Signature of staff member

Signature of Head of the Deptt.

Prof. & Head
Genetics & Plant Breeding

Acting Dean
College of Agriculture
12/10/19

Signature of Dean PGS

DEAN, P.G.S.
12/10/19

BRIEF BIO-DATA FOR PH.D. ACCREDITATION

(350 copies are required on one page, on one side)

1.	Name	:	Dr. Pratibha
2.	Designation	:	Assistant Professor
3.	Date of birth	:	1 June 1981
4.	Department	:	Horticulture
5.	Educational Qualification	:	Doctor of Philosophy in Horticulture
6.	Field of Specialization	:	Fruit Science
7.	Experience as Faculty member:		
	(i) Outside the University	:	w.e.f. - to -
	(ii) (a) In the University	:	w.e.f. 22.09.2010 to Till Date
	(b) On present post		w.e.f 22.09.2010 to Till Date
8.	Publications:		
	(a) No. of Research papers published	:	15
	(b) No. of articles published	:	5
	(c) Books/Chapters in books	:	2
	(d) Other publications, if any	:	4

9. Details of courses taught:

Sl.No.	No. & Title of the course	Credit hrs.
	U.G. Level:	
i.	APH -311 Fundamentals of Horticulture	3 (2+1)
ii.	APH/APV/APP 456 Nutrition Gardening	3 (2+1)
iii.	HPH 100 Fundamentals of Horticultural Crops	3 (2+1)
iv.	HNS 301 Nutrition of Horticultural Crops	3 (2+1)
v.	APH 102 Agriculture for Engineers	4(3+1)
vi.	APH -310 Fundamentals of Horticulture	2(1+1)
vii.	APH -390 Integrated Storage Management of Horticultural Crops	3(1+2)
viii	APH 386 Nursery Management of Horticultural Crops	2 (0+2)
	P.G. Level:	
i.	APH- 711 Nutrition of fruit crops	3 (2+1)
ii.	APH-401 Introduction to Horticulture	3 (2+1)
iii.	APH- 730 Nutrition of Horticultural Crops	3 (2+1)
iv.	APH 543 Biodiversity of Horticultural Crops	3(2+1)

10. No. of Master's students guided (in case of Ph.D. research) : 3

Name	ID.NO.	Thesis title	Year of completion
Mr. Avishek Roy	49500	Studies on morphological and reproductive traits of jackfruit germplasms under tarai conditions of Uttarakhand	2017
Ms. Shikha	50947	Effect of foliar application of calcium and boron on growth, yield and fruit quality of jackfruit (*Artocarpus heterophyllus* L.)	2018
Mr. Ravi Kumar	52526	Comparison of inarching with other methods of propagation performed during different months in jackfruit (*Artocarpus heterophyllus* L.)	2019

Signature of staff member 16.8.19

Signature of Head of the Deptt. 5/8/19 Head Horticulture

Signature of Dean College Concerned (J. Kumar) Dean Agriculture 5/8/19

Signature of Dean PGS DEAN, P.G.S. 22/8/2019

BRIEF BIO-DATA FOR MASTER'S/PH.D. ACCREDITATION

(15 copies are required on one page, on one side)

1. Name : Dr. Navin Singh
2. Designation : S.R.O.
3. Date of birth : 03.03.1974
4. Department : Horticulture
5. Educational Qualification : Ph.D.
6. Field of Specialization : Horticulture- Fruit Science

7. Experience as Faculty member:
   - (i) Outside the University : w.e.f. - to -
   - (ii) (a) In the University : w.e.f. 11.12.2006 to 10.12.2018
   - (b) On present post : w.e.f. 11.12.2018 to Continue
8. Publications:
   - (a) No. of Research papers published : 18
   - (b) No. of articles published : 09
   - (c) Books/Chapters in books : 03
   - (d) Other publications, if any : 11 (Abstracts)
9. Details of courses taught:

Sl. No.	No. & Title of the course	Credit hrs.
	U.G. Level:	
i.	AWP101 Work Programme	1(0-0-1x3)
ii.	ARE390 Rural Agricultural Work Experience (RAWE)	18
iii.	APH386 Nursery Management of Horticultural Crops	2(0-0-1x2)
iv.	APH/APP/ APE207 Principles of Horticultural Crops and Plant Protection	2(0-0-1x2)
v.	APH/APV390 Integrated storage management of Horticultural Crops	3(2-0-1x3)
vi.	APH 311 Fundamental of Horticulture	3(2-0-1x3)
	P.G. Level:	
i.	APH-542 Subtropical and Temperate Fruit Production	3(2-0-1x3)

10. No. of Master's students guided (in case of Ph.D. research) :

Name	ID. NO.	Thesis title	Year of completion
Mr. Anil Kumar	47066	Foliar spray of calcium chloride and boric acid for improving fruit yield, quality and shelf life of guava (*Psidium guajava* L.) cv. Pant Prabhat.	2016
Mr. Ankit Dongariyal	39361	Evaluation of PGRs and promising chemicals for improving flowering and bearing potential in litchi.	2017
Mr. Kailash	50984	Influence of post harvest treatments on storage of guava (*Psidium guajava* L.) VAR. Pant Prabhat.	2018
Mr. Raj Kiran	52719	Effect of different packaging material on physic-chemical parameters for self life of guava (*Psidium guajava* L.) cv. Pant Prabhat.	2019

N. Singh

Signature of Staff Member

Signature of Dean Acting Dean College of Agriculture

Signature of Head of the Deptt. Head Hort. College of Agriculture

Signature of Dean PGS

DEAN, P.G.S. 25/9/19

BRIEF BIO-DATA FOR ~~MASTER'S~~/PH.D. ACCREDITATION

(15 copies are required on one page, on one side)

1.	Name	:	Ajeet Pratap Singh		
2.	Designation	:	Senior Research Officer		
3.	Date of birth	:	18th December, 1976		
4.	Department	:	Soil Science		
5.	Educational Qualification	:	Ph. D.		
6.	Field of Specialization	:	Soil Science-Soil Fertility/IFS		
7.	Experience as Faculty member:				
	(i) Outside the University	:	w.e.f. 19.03.2019	to	15.07.2019
	(ii) (a) In the University	:	w.e.f. 17.05.2006	to	18.03.2019
			w.e.f. 16.07.2019	to	Till date
	(b) On present post		w.e.f. 18.05.2018	to	18.03.2019
			w.e.f. 16.07.2019	to	Till date
8.	Publications:				
	(a) No. of Research papers published	:	17 (Seventeen)		
	(b) No. of articles published	:	11 (Eleven)		
	(c) Books/Chapters in books	:	01 (One)		
	(d) Other publications, if any	:	01 (One)		

9. Details of courses taught:

Sl.No.	No. & Title of the course	Credit hrs.
	U.G. Level:	
i.	APS-320; Fundamentals of Soil Science	3
ii.	APS-330; Soil Fertility Fertilizers and INM	3
iii.	ARE-390; Rural Agriculture Work Experience	18
iv.	AWA-101; Work Programme	1
v.	APS-340; Cons. & Management of Soil Water Resources in Agriculture	3
	P.G. Level:	
i.	APS-401; Basics of Soil Science	3
ii.	APS-430; Soil Survey	3
iii.	APS-519; Soil Mineralogy, Genesis, Classification and Survey	3
iv.	APS-641; Land Use Planning and Management	3

10. No. of Master's students guided (in case of Ph.D. research) : 4

Name	ID. No.	Thesis title	Year of completion
1. Deepa Rawat	39450	Study on resource conservation technologies and fertilizer doses on rice.	2011
2. Maneesh Bhatt	45579	Long-term effect of fertilizer application, substitution and continuous cropping on soil properties and crop yield under rice-wheat cropping system in a Mollisol.	2016
3. Jyoti Negi	49604	Effect of long term application of fertilizers and crop residues on soil properties and crop yield under rice-wheat system in a Mollisol.	2018
4. Basta Ram	52586	Effect of different land uses on carbon fractions and storage in a Mollisol	2019

22/7/19

Signature of staff member

22/07/19

Signature of Head of the Deptt.

Head, Soil Science

(J. Kumar)

Dean, Agriculture

Signature of Dean, College Concerned 22/7/19

Signature of Dean PGS

DEAN, P.G.S.

22/8/2019

BRIEF BIO-DATA FOR ~~MASTER'S~~/Ph.D. ACCREDITATION

(10 copies are required on one page, on one side)

1. Name : Alka Verma
2. Designation : Junior Research Officer
3. Date of birth : 4th August, 1977
4. Department : Vegetable Science
5. Educational Qualification : Ph. D.
6. Field of Specialization : Vegetable Breeding

7. Experience as Faculty member:
   (i) Outside the University : nil
   (ii) (a) In the University : w.e.f. 23.04.2013 to till date
   (b) On present post : w.e.f. 23.04.2013 to till date
8. Publications:
   (a) No. of Research papers published : 08
   (b) No. of articles published : 21
   (c) Books/Chapters in books : 03
   (d) Other publications, if any : 17
9. Details of courses taught:

Sl.No.	No. & Title of the course	Credit hrs.
	U.G. Level:	
i.	ARE 101 Work Programme	1
ii.	APV 310 Production of Vegetable and Spices	3
iii.	APV 311 Production technology for Vegetables and Spices	2
iv.	APV 390 Integrated Storage Management of Hort. Crops	3
v.	APV 456 Nutrition Gardening	3
	P.G. Level:	
i.	APV 502 Breeding of Self-pollinated Veg. Crops	3
ii.	APV 503 Breeding of Cross-pollinated Veg. Crops	3
iii.	APV 531 Production technology of cool season crops	3
iv.	APV 536 Biodiversity and Conservation in Vegetable Crops	2
v.	APV 601 Special Problem	1
vi.	APV 722 Advances in Vegetable Breeding	3

10. No. of Master's students guided (in case of Ph.D. research) : **03**

Name	ID. NO.	Thesis Title	Year of completion
Mr. Swadesh Banerjee	49487	Characterization of Brinjal (*Solanum melongena* L.) Germplasm	2017
Mr. Yashpal Singh Bisht	50937	Evaluation of Brinjal (*Solanum melongena* L.) Genotypes Under Organic Conditions	2018
Ms. Priyanka Pani	52564	Evaluation of Promising Advance Lines in Garden Pea (*Pisum sativum* L.)	2019

Signature of staff member

Signature of Head of the Department
Head
Vegetable Science

Signature of Dean, College
Acting Dean
College of Agriculture

Signature of Dean, PGS
DEAN, P.G.S.

BRIEF BIO-DATA FOR MASTER'S/PH.D. ACCREDITATION

(15 copies are required on one page, on one side)


Scanned photograph of the candidate

1.	Name	:	Ravi Pratap Singh
2.	Designation	:	Associate Professor
3.	Date of birth	:	26.02.1961
4.	Department	:	Farm Machinery and Power Engineering
5.	Educational Qualification	:	Ph.D
6.	Field of Specialization	:	Farm Power and Machinery, Renewable energy technologies
7.	Experience as Faculty member:		
	(i) Outside the University	:	Nil
	(ii) (a) In the University	:	w.e.f. 10.11.1998 to till date
	(b) On present post		w.e.f. 9.05.2008 to till date
8.	Publications:		
	(a) No. of Research papers published	:	1
	(b) No. of articles published	:	2
	(c) Books/Chapters in books	:	Nil
	(d) Other publications, if any	:	3 Articles as Conference Proceedings /Book form

9. Details of courses taught:

Sl.No.	No. & Title of the course	Credit hrs.
	U.G. Level:	
i.	TMP-305 Farm Power and Machinery,	2
ii.	TMP-306 Renewable energy	2
iii.	TMP-315 & 316 Field Operation and Maintenance of Tractors & Farm Machinery- I &II	1 Cr. each
iv.	TMP-426 Renewable Energy Technology	3
	P.G. Level:	
i.	TMP – 642 Agro- Energy Audit &Management	3
ii.	TMP –6 46 Design &Analysis of Renewable Energy Conversion System	3
iii.	TMP –636 Ergonomics & Safety in Farm Operations	2
iv.	TMP -723 Energy Conservation & Management in Farm Power Machinery	2

10. No. of Master's students guided (in case of Ph.D. research) : 6 :

Name	ID.NO.	Thesis title	Year of completion
1. Ashiwani Dighe	39263	Studies on ----biogas production	2011
2.Rahul	34833	Studies --Temperature Condition	2013
3. Deepika Arya	36224	Studies --Temperature Condition	2013
4.Sachin Balu	44298	Studies--- Oil-Diesel Blends	2014
5.Gaurav Tomar	44234	Studies -- - Alkali Treatments	2014
6.Rajnish Kumar Dwivedi	45815	Studies----- Pine Needles	2015

RP Singh
Signature of staff member

Signature of Head of the Deptt.
Head
Deptt. of Farm Machinery & Power Engg.

15-10-18
Signature of Dean College Concerned
Dean Tech.

18/10/18
DEAN, P.G.S.

Signature of Dean PGS
DEAN, P.G.S.
22/8/19

Office of the Dean P.G.S.
Receipt No. 791
Date 18-10-18
Pantnagar

BRIEF BIO-DATA FOR Ph.D. ACCREDITATION

(15 copies are required on one page, on one side)

1. Name : Dr. Arvind Singh Tomar
2. Designation : Assistant Professor
3. Date of birth : 17/06/1971
4. Department : Irrigation and Drainage Engineering
5. Educational Qualification : Ph.D.
6. Field of Specialization : Irrigation and Drainage Engineering
7. Experience as Faculty member: More than 16 years
   (i) Outside the University : N.A.
   (ii) (a) In the University : w.e.f. 03/05/2003 to till date.
   (b) On present post : w.e.f. 03/05/2003 to till date.
8. Publications:
   (a) No. of Research papers published : 86
   (b) No. of articles published : 57
   (c) Books/Chapters in books : --
   (d) Other publications, if any : 04 (01 Lab manual + 03 Theses/Dissertation)
9. Details of courses taught:

S. No.	No. & Title of the course	Credit Hours
	U.G. Level	
1.	TID 102 Introduction to Environmental Engineering	2
2.	TID 350 Agricultural Engineering Structures & Rural Engineering	3
3.	TID 351 Agricultural Structures, Environmental Control and Rural Engineering	3
4.	TID 360 Fluid Transport Machinery & Hydraulic Control	3
5.	TID 361 Fluid Transport Machinery	3
6.	TID 431 Engineering of Bio-systems	3
7.	TID 468 Land & Water Development and Management Engineering	3
8.	TID 471 Advanced Irrigation & Drainage Engineering	3
9.	TID 481 Drainage Engineering	2
10.	TID 492 Seminar	1
	P.G. Level	
1.	TID 612 Flow Through Porous Media	2

10. No. of Master's students guided (in case of Ph.D. research): 08 Nos.

S. No.	Name of students (Mr./Ms.)	ID No.	Thesis title	Year of completion
1.	Nigadi Ramesh Rajendra	52559	Evaluation of FAO56-PM model against various forms of Valiantzas ET_0 equations in arid climatic condition.	2018 (submitted on 28.08.2019)
2.	Vikash Gupta	52822	Evaluation of FAO56-PM ET_0 model under meteorological data limiting scenarios at semi-arid Hissar district of Haryana.	2018 (submitted on 28.08.2019)
3.	Shyam Murari Bind	51214	Comparative evaluation of calibrated temperature- and radiation-based ET_0 equations developed for semi-arid climatic conditions based on standardized FAO56-PM model.	2018
4.	Pratiksha Rai	49665	Comparative evaluation of daily reference evapotranspiration estimates using NOAA-AVHRR satellite data and ground data.	2017
5.	Sweta Garg	40265	Evaluation and calibration of temperature, radiation, and mass transfer based equations for estimating reference evapotranspiration in sub-humid conditions based on standardized Penman Monteith model.	2016
6.	Yadvendra Pal Singh	48185	Sensitivity of standardized Penman Monteith estimates to climate change at Indian sub-humid locations.	2016
7.	Om Prakash Kumar	44118	Performance evaluation of evapotranspiration methods and development of radiation-based evapotranspiration equations for sub-humid Hazaribagh region of Jharkhand.	2014
8.	Igol Riba	41149	Determination of site-specific pan coefficient values and their comparative evaluation with available methods for Pantnagar, Uttarakhand.	2012

31/08/19

Signature of staff member

Signature of Head of the Department

HEAD
Deptt. of Irrig. & Drainage Engg

Signature of Dean, College concerned

Dean
College of Technology

Signature of Dean, PGS

DEAN, P.G.S.
24/9/19

BRIEF BIO-DATA FOR PhD ACCREDITATION

1. Name : Dr. Mridula Sharma
2. Designation : Assistant Professor
3. Date of birth : 19-07-1977
4. Department : VGO, CVASc
5. Educational Qualification : PhD
6. Field of Specialization : Animal Reproduction (Female Infertility)
7. Experience as Faculty member: 13 years
   (i) Outside the University : w.e.f. to
   (ii) (a) In the University : w.e.f. 23.12.2004 till date
   (b) On present post : w.e.f 23.12.2004 till date
8. Publications:
   (a) No. of Research papers published : 19
   (b) No. of articles published : 12
   (c) Books/Chapters in books :
   (d) Other publications, if any : Laboratory manuals
9. Details of courses taught:

Sl.No.	No. & Title of the course	Credit hrs.
	U.G. Level:	
i.	VOG-421 Gynaecology & Obstetrics	2+0
ii	VOG-422 Gynaecology & Obstetrics (Clinics)	0+2
iii.	VOG- 511 Andrology & AI	2+0
iv	VOG-512 Andrology & AI (Clinics)	0+2
v.	VGO-411 Veterinary Gynaecology	2+1
vi	VGO-421 Veterinary Obstetrics	1+1
viii	VGO-511 Andrology and Reproductive techniques	1+1
ix	VGO-411Veterinary clinical Paratice	0+5
x	VGO-421Veterinary clinical Paratice	0+5
xi	VGO-511Veterinary clinical Paratice	0+5
	P.G. Level	
1.	VOG-604 Frozen Semen Technology	2
2	VOG-651 General Obstetrics	3
3	VOG-611 Seminology	3
4.	VGO-600 Master's Seminar	1
5	VGO-788 Doctoral Seminar	1
6.	VGO-617 Clinical Practice II	1
7	VGO-703 Advances in Andrology	3
8	VGO-707 Clinical Practice II	1
9	VOG-652 Gestational and peri-parturient disorders	3
10	VOG-651 General Obstetrics	3
11	VOG-631 General Gynaecology	3
12	VGO-601 Special Problem	1

10. **No. of master students guided (In case of PhD research)**

Sl. No.	Name	ID. NO.	Thesis Title	Year of completion
1.	Dr Anoop Singh	48069	Effect of Butylated Hydroxytoluene on Post Thaw Semen Characteristics and Ultrastructure of Bovine Spermatozoa	2016
2.	Dr Yaqoob Bhat	49602	Effect of bovine semen enrichment by percoll density gradient on fertility of semen	2017
3.	Dr Meenakshi Rawat	41700	X- Sperm Enrichment In Buffalo Bull Semen By Percoll Density Gradient	2018
4.	Dr Deeksha Chaudhary	41729	Separation of x and y sperms in bovine semen and their detection following enrichment	2018

Signature of staff member

Signature of Head

Head, V.G.O.

Signature of Dean College Concerned

Dean, V.A.Sc

Signature of Dean PGS

DEAN, P.G.S.
28/8/19

BRIEF BIO-DATA FOR PH.D. ACCREDITATION

(15 copies are required on one page, on one side)

1. Name : **Dr. Sameena Mehtab**
2. Designation : Assistant Professor
3. Date of Birth : 19/08/1981
4. Department : Chemistry, CBSH
5. Educational Qualification : Ph.D.
6. Field of Specialization : Inorganic Chemistry
7. Experience as Faculty member:
   Outside University : 01/08/2013 to 24/06/ 2015
   (a) in the University : 23/11/2015 to cont...
   (b) on present post : 23/11/2015 to cont...

8. Publications:
   a. No. of Research papers published:**41**
   b. No. of articles published: NA
   c. Books/Chapters in books: Nil
   d. Other publications, if any: 15 publications in symposium and conferences
   Citations-**1029**, h-index **16**

9. Details of courses taught: In GBPUAT

Sl. No.	Course No.	Title of Course	Credit Hours
		U.G. Level	
(i)	BPC-161	Engg. Chem. I	2
(ii)	BPC-162	Engg. Chem. II	2
(iii)	BPC-102	Engg. Chem	4
(iv)	BPC-150	Organic Chemistry	3
(v)	BPC-500	General Chemistry	4
(vi)	BPB-300	Biophysics and Bioinstrumentation	2
		P.G. Level	
(i)	BPC-600	Masters Seminar	1
(ii)	BPC-623	Advanced Inorganic Chemistry	2
(iii)	BPC-602	Environmental Chemistry	3
(iv)	BPC-721	Selected Topics in Inorg. Chem.	2
(v)	BPC-789	Ph.D. Seminar	1

10. No. of Mater's students guided (in case of Ph.D. research) :

Sl. No.	Name	ID. NO.	Thesis Title	Year of completion
1.	Pragati Joshi	51092	Development of electrochemical sensors for chlorpyrifos detection	2018
2.	Shubham Sharma	52534	Development of nanocomposite modified electrode for voltammetric estimation of cholesterol	2019
3.	Preeti Joshi	52584	Voltammetric quantification of cholesterol over polyindole tungsten carbide modified electrode	2019

Sameena 01.07.19

Signature of staff member

Signature of Head of the Deptt.

Head 01/07/19
Department of Chemistry

Signature of dean College Concerned

Dean, C.B.S.H. 1/7/19

Signature of Dean PGS

DEAN, P.G.S. 2/7/19

BRIEF BIO-DATA FOR MASTER'S/PH. D. ACCREDITATION

(15 copies are required on one page, on one side)

1. Name : **Dr Ravendra Kumar**
2. Designation : **Assistant Professor**
3. Date of Birth : **02/02/1982**
4. Department : **Chemistry**
5. Educational Qualification : **Ph.D.**
6. Field of Specialization : **Natural Product Chemistry**
7. Experience as Faculty member:
   - (i) Outside the university : NA
   - (ii) (a) In the university : 20/11/2015 to cont....
   - (b) On present post : 20/11/2015 to cont....
8. Publication :
   - (a) No. of Research papers published : 21
   - (b) No. of articles published : NA
   - (c) Books/Chapters in books : 02
   - (d) Other publications, if any : NA
9. Details of courses taught: G.B.P.U.A.T.

SNo.	No. & Title of the Course		Credit hrs.
	U.G. Level		
i.	BPC-162	Engg.Chem II	2(1-0-1x3)
ii.	BPC-150	Organic Chemistry	3(2-0-1x3)
iii.	BPC-300	Biophysics and Bioinstrumentation	2(2-0-0)
iv	BPC-410	Agrochemicals	3(2-0-1)
	P.G. Level		
i.	BPC-531	Organic Chemistry	3(3-0-0)
ii.	BPC-602	Environmental Chemistry	3(2-0-1x3)
iii.	BPC-614	Chromatographic & Spectroscopic Techniques	3(2-0-1x3)
iv.	BPC-500	General Chemistry	4(3-0-1)
v.	BPC-606	Synthetic Agro Chemicals for Insects & Mites Management	3(2-0-1)
vi	BPC-607	Synthetic Agro Chemicals for Fungi & Nematodes Management	3(2-0-1)
vii	BPC-608	Synthetic Agro Chemicals for Weed Management	3(2-0-1)
viii	BPC-601	Special Problem	2
ix	BPC-732	Chemistry of Bioactive Natural Products	2(2-0-0)

10. No. of Mater's students guided (in case of Ph.D. research) : **03**

Sl. No.	Name	ID. NO.	Thesis Title	Year of completion
1.	Anamika Dhami	51008	Phytochemical Analysis and Biological Activities of Essential Oil of *Zanthoxylum armatum* DC. Collected from Two Different Altitudes	2018
2.	Randeep Kumar	52500	Phytochemical Analysis, Pharmacological Properties and Biopesticidal Efficacy of *Limnophila indica* (L.) Druce	2019
3.	Bahar Anjum	52585	Phytochemical Analysis and Biological Activities of *Ardisia solanacea* Roxb. Collected from Tarai Region of Uttarakhand	2019

Signature of staff member

Signature of Head of the Deptt.
Department of Chemistry

Signature of Dean College Concerned
Dean, G.B.P.U.A.T.
20/6/19

Signature of Dean PGS
DEAN, P.G.S.
22/8/2019

BRIEF BIO-DATA FOR PH.D. ACCREDITATION

(15 copies are required on one page, on one side)

1. Name : Dr. B. C. Chanyal
2. Designation : Assistant Professor
3. Date of birth : 23/08/1986
4. Department : Physics
5. Educational Qualification : Ph.D., CSIR-NET, USET, JEST
6. Field of Specialization : High Energy Particle Physics (Theor.)
7. Experience as Faculty member:
   - (i) Outside the University : w.e.f. 18.09.2008 to 31.12.2015
   - (ii) (a) In the University : w.e.f. 01.01.2016 to onwards
   - (b) On present post : w.e.f. 01.01.2016 to onwards
8. Publications:
   - (a) No. of Research papers published : 30 (Thirty)
   - (b) No. of articles published : NIL
   - (c) Books/Chapters in books : 03 (Three)
   - (d) Other publications (Conference Proc.) : 24 (Twenty four)
9. Details of courses taught:

U.G.Level:

S. N.	Course No.	Title of Course	Credit Hours
i.	BPP-195	Physics I	03(2-1-1×2)
ii.	BPP-196	Physics II	03(2-1-1×2)
iii.	BPP-197	Engineering Physics	03(2-1-1×2)
iv.	BPP-190	General Physics	03(2-2-1×3)
v.	BPP-124	Elements of Physics	02(2-0-1×2)
vi.	BPP-199	Mechanics	05(3-1-1×2)
vii.	BPP-151	Wave and Optics and Introduction to Quantum Mechanics	05(3-1-1×2)

P.G. Level:

S.N.	Course No.	Title of Course	Credit Hours
i.	BPP-520	Quantum Mechanics	02(2-1-0)
ii.	BPP-570	Experimental Physics	03(0-0-3)
iii.	BPP-720	Advanced quantum Mechanics	02(2-0-0)

10. No. of Master's students guided (in case of Ph.D. research) :

S.N	Name	ID. No.	Thesis title	Year of completion
i.	Mayank Pathak	49931	Role of Quaternion in Dyonic Cold Plasma	2018
ii.	Sandhya	52635	Quaternionic Dirac equation in a Rotating Frame of Reference	2019
iii.	Manisha Goutam	52636	Quaternionic formalism of curvature space-time and Einstein field equation	2019

19/9/19

Signature of staff member

19/9/19.

Signature of Head of the Deptt.

Professor & Head
Physics Department

19.9.2019

Signature of Dean College Concerned

Dean, C.B.S.H

Signature of Dean PGS

DEAN, P.G.S.
24/9/2019

BRIEF BIO-DATA FOR PH.D. ACCREDITATION

(15 copies are required on one page, on one side)

Scanned photograph of the candidate

1.	**Name**	:	Reetika Bhatt
2.	**Designation**	:	Assistant Professor
3.	**Date of birth**	:	26-Dec-1987
4.	**Department**	:	Agribusiness and Rural Management
5.	**Educational Qualification**	:	Ph.D
6.	**Field of Specialization**	:	MBA (Agribusiness) and Ph.D (Management) Minor(Financial Management)
7.	**Experience as Faculty member:**		20-Nov-2015 to Till Date
	(i) Outside the University	:	-----X----------
	(ii) (a) In the University	:	20-Nov-2015
	(b) On present post		20-Nov-2015
8.	**Publications:**		
	(a) No. of Research papers published	:	04
	(b) No. of articles published	:	02
	(c) Books/Chapters in books	:	NIL
	(d) Other publications, if any	:	NIL

9. **Details of courses taught:**

Sl No.	No. & Title of the course	Credit hrs.
	U.G. Level: NIL	
	P.G. Level:	
1	MAM 701 Advance Economic Analysis	3
2	MAM-501 Managerial Economics	2
3	MAM-562 Management Accounting	2
4	MAM-504 Entrepreneurship Development	2
5	MAM-624 Advertisement and Sales Promotion	3
6	MAM-663 Commodities, Options and Derivatives	2
7	MAM-630 Logistics and Supply Chain Management	2

10. **No. of Master's students guided (in case of Ph.D. research)**

Name	ID.NO	Thesis title	Year of completion
Akansha Agarwal	51033	Study on influence of Advertisement on Consumers' Brand Preference towards Ready to Eat products in Delhi-NCR	2018
Pawan Joshi	39716	Analysis of Factors Influencing the Research Varieties of Paddy in Eastern Uttar Pradesh.	2018
Divya Chhabra	43877	Study on infrastructure and Investment pattern of Fruits & Vegetable market in India	2018
Animesh Shrotria	51030	Study on opportunities for fruits in present Indian market scenario.	2018
Sumit Bhatt	51024	Study The Effectiveness Of Internet Advertising On Consumer Buying Behaviour in Delhi-NCR.	2018

Signature of staff member

Signature of Head of the Deptt.

Signature of Dean College Concerned

Signature of Dean PGS

DEAN, P.G.S.
27/10/19

Assoc. Pr
S.R.O.
S.R.O
Ass'
S

BRIEF BIO-DATA FOR MASTER'S/PH.D. ACCREDITATION

(15 copies are required on one page, on one side)

1. Name : RATNESH PRASAD SRIVASTAVA
2. Designation : ASSISTANT PROFESSOR
3. Date of birth : 15-01-1976
4. Department : INFORMATION TECHNOLOGY
5. Educational Qualification : Ph.D
6. Field of Specialization : Information Tech.
7. Experience as Faculty member:
   (i) Outside the University : w.e.f. to
   (ii) (a) In the University : w.e.f. 03-1-2011 to Till Date
   (b) On present post w.e.f. 03-1-2011 to Till Date
8. Publications:
   (a) No. of Research papers published : 10 (List Enclosed)
   (b) No. of articles published :
   (c) Books/Chapters in books :
   (d) Other publications, if any :
9. Details of courses taught:

Sl.No.	No. & Title of the course	Credit hrs.
	U.G. Level:	
i.	TIT 473 Data Mining & Warehousing	3 (2-1-2)
ii.	TIT 225 Object Oriented Design	3 (2-1-2)
iii.	TIT 420 Artificial Intelligence	3 (2-1-2)
iv.	TIT 361 Web Technology & Internet Programming	4 (2-0-2)
	P.G. Level:	
i.	TIT 615 Software Reusability	2 (2-0-0)
ii.	MCA 629 Internet & Java Programming	3 (2-0-3)
iii.	MCA 651 Data Mining & Warehousing	3 (2-1-2)
iv.	TIT 690 Master Thesis Research	10

10. No. of Master's students guided (in case of Ph.D. research) :

Name	ID.NO.	Thesis title	Year of completion
1. Ms. Neha Rawat	44225	Securing Data in Cloud Storage	2014
2. Ms. Aanchal Verma	51215	A novel approach Recognizing Objects from Images by using SIFT & HMM	2018
3. Sanjay Chandra Arya	457843	Image Denoising in handwritten documents for degraded documents using Wiener Filter Algorithm.	2015 (Guided for one year. from Sep. 2013 - Sep. 2014)
4. Jaideep Negi	42630	Restaurant Finder	2014
5. Raksha Tripathi	42715	Python Application & Products in Data Processing	2014
6. Varun Sharma	42629	TCS: BaNCS Custody: Securities Processing	2014.

Signature of staff member

Signature of Head of the Deptt.

Signature of Dean College Concerned

Signature of Dean PGS

Minutes of the Accreditation Committee Meeting held on October 15, 2019 at 3:00 P.M. in the Committee Room of Dean, P.G.S.

The following attended the meeting.

1. Dr. Deepa Vinay, Head, Family Resource Management
2. Dr. K.S. Shekhar, Head, Agronomy
3. Dr. Santosh Kumar, Acting Head, Horticulture
4. Dr. M. Raghav, Head, Vegetable Science
5. Dr. Yogendra Kumar, Head, Irrigation & Drainage Engineering
6. Dr. S.S. Gupta, Acting Head, Information Technology
7. Dr. R.C. Srivastava, Head, Physics
8. Dr. T.P. Singh, Head, Farm Machinery & Power Engineering
9. Dr. P.C. Srivastava, Head, Soil Science
10. Dr. M.G.H. Zaidi, Head, Chemistry
11. Dr. A.K. Shukla, Dean, CBSH
12. Dr. Alka Goel, Acting Dean, Home Science
13. Dr. S.K. Shukla, Dean, V.A.Sc.
14. Dr. H.S. Chawla, Head, GPB / Acting Dean, Agriculture / Dean, PGS / Convenor

The committee examined the applications of the following faculty members for their accreditation for P.G. research and recommended the following to guide Master's/Ph.D. research as mentioned against their names.

Sl. No.	Name of Faculty Member	Designation	Department	Applied for Accreditation
1.	Dr. Divya Singh	Asstt. Prof.	Family Resource Mgt.	Master's
2.	Dr. Sandhya Rani	Asstt. Prof.	Family Resource Mgt.	Master's
3.	Dr. Sanjay Kumar	Assoc. Director	Agronomy (KVK, Gwaldam)	Master's
4.	Dr. S.P. Gangwar	J.R.O.	Soil Science	Master's
5.	Dr. Dharmendra Kumar Shukla	J.R.O.	Agronomy	Ph.D.
6.	Dr. Ravi Kiran	Assoc. Prof.	Agrometeorology	Ph.D.
7.	Dr. M.K. Karnwal	Assoc. Prof.	Genetics & Plant Breed.	Ph.D.
8.	Dr. Anil Kumar	S.R.O.	Genetics & Plant Breed.	Ph.D.
9.	Dr. Swati	S.R.O.	Genetics & Plant Breed.	Ph.D.
10.	Dr. Pratibha	Asstt. Prof.	Horticulture	Ph.D.
11.	Dr. Navin Singh	S.R.O.	Horticulture	Ph.D.
12.	Dr. Ajeet Pratap Singh	S.R.O.	Soil Science	Ph.D.
13.	Dr. Alka Verma	J.R.O.	Vegetable Science	Ph.D.
14.	Dr. Ravi Pratap Singh	Assoc. Prof.	Farm Mach. & Power Engg.	Ph.D.
15.	Dr. Arvind Singh Tomar	Asstt. Prof.	Irrigation & Drain. Engg.	Ph.D.
16.	Dr. Mridula Sharma	Asstt. Prof.	Vety. Gyn. & Obstetrics	Ph.D.
17.	Dr. Sameena Mehtab	Asstt. Prof.	Chemistry	Ph.D.
18.	Dr. Ravendra Kumar	Asstt. Prof.	Chemistry	Ph.D.
19.	Dr. B.C. Chanyal	Asstt. Prof.	Physics	Ph.D.
20.	Dr. Reetika Bhatt	Asstt. Prof.	CABM	Ph.D.
21.	Dr. Ratnesh Prasad Srivastava	Asstt. Prof.	Information Technology	Ph.D.

(Deepa Vinay)
Head, Family Res. Mgt.

(K.S. Shekhar)
Head, Agronomy

(Santosh Kumar)
Acting Head, Horticulture

(M. Raghav)
Head, Veg. Sci.

(Yogendra Kumar)
Head, Irrig. & Drain. Engg.

(R.C. Srivastava)
Head, Physics

(T.P. Singh)
Head, FMPE

(P.C. Srivastava)
Head, Soil Sci.

(M.G.H. Zaidi)
Head, Chemistry

(S.S. Gupta)
Acting Head, Inf. Tech.

(Alka Goel)
Acting Dean, H.Sc.

(S.K. Shukla)
Dean, V.A.Sc.

(A.K. Shukla)
Dean, CBSH

(H.S. Chawla)
Head, GPB / Acting Dean, Agriculture / Dean, P.G.S./Convenor

Item No. I/2019:4 Start of Ph.D. degree programme in Statistics/Agricultural Statistics

The proposal regarding start of Ph.D. with major in Statistics in the Department of Mathematics, Statistics and Computer Science received from Head, M.S.C.S. through Dean, C.B.S.H. was placed before the House in its II/2018 meeting held on November 28, 2018. As per the decision of the House the proposal was referred back to Head, M.S.C.S. for resubmission along with the following information/documents.

1. Teaching Load of faculty members.
2. Arrangement/teaching load distribution for the proposed degree programme.
3. Recommendations/comments be obtained from various reputed Universities/Institutions like B.H.U., J.N.U. etc.

The proposal after inclusion/compliance of above points is placed for kind consideration of P.G. Faculty.

Head, Math., Stat. & Comp. Sci.

Proposal for **Ph. D.** Programme

in

Statistics/ Agricultural Statistics

DEPARTMENT OF MATHEMATICS, STATISTICS AND COMPUTER SCIENCE
COLLEGE OF BASIC SCIENCES AND HUMANITIES
G.B. PANT UNIVERSITY OF AGRICULTURE & TECHNOLOGY
PANTNAGAR- 263145, UDHAM SINGH NAGAR, UTTARAKHAND

Proposal for Ph.D. programme in Statistics/Agricultural Statistics

1. Need & Justification:

The courses of Mathematics were introduced in the Department of Physical Sciences in the year 1960 along with the establishment of the University. The department was established in the year 1968 by the name Department of Mathematics and Statistics which was later renamed as Department of Mathematics, Statistics and Computer Science in the year 1998. Earlier basic thrust of the department was to teach various undergraduate/ postgraduate programmes of the University. Department introduced computer usage in the university with acquisition of TDC-12 in 1973. Presently Department offers M.Sc. (Mathematics), M.Sc. (Agricultural Statistics/ Statistics) and Ph.D. (Mathematics) programmes. The department consists of highly qualified and well trained faculty along with two computer labs (UG/PG) consisting of 60 latest i-7 PCs and one LINUX lab. Department has about 200 computer programmes in FORTRAN for Mathematical and Statistical modelling besides R, SAS and MATLAB Softwares. 10 VT-220 terminals are connected with LINUX based Super Server and one Pentium server and 8 PCs are connected on LAN for PG students. All Ph.D. students of the University learn the use of various computer softwares such as SAS, MATLAB, R-software etc. to solve their research problems. Besides the University Central Library, Department has its own library consisting of about 200 books of Mathematics, Statistics & Computer Science.

Statistics is nowadays being used by almost all academicians and researchers not only in the country itself but also abroad. New inventions are going on rapidly and consequently the use of new research techniques is increasing day by day. Thus, there is a constant demand from various sectors such as Agriculture, industries and government organizations for new statistical models and techniques for a better planning for the welfare of the people. The department is regularly producing post graduate students to meet out the demand of qualified statisticians in various fields but still there is a constant demand of highly qualified statisticians, scientists and teachers from various sectors. Moreover, post graduate students of the department suffer a lot to enhance their qualification upto Ph.D. level, as a very few universities are running Ph.D. programme in Statistics/Agricultural Statistics. Keeping in view the increasing demand of qualified and trained professionals in Statistics, the Department is of the opinion that in order to provide very good opportunities for the post graduate students produced by the department along with the students of the other universities to upgrade their qualification and to exploit the talent and experience of the faculty members for the welfare of the students, there is urgent need to offer **Ph.D.** programme in **Statistics/Agricultural Statistics.**

Thus, The Department of Mathematics, Statistics and Computer Science proposes a new three year full time **Ph. D.** programme in **Statistics/Agricultural Statistics** which will help to take the unified approach to invent new statistical techniques in the various fields of Statistics to meet out the demand and to bring out the academic enhancement of the post graduate students of Statistics/Agricultural Statistics. More emphasis will be to develop more and more useful statistical models for Agricultural Scientists, life testing models useful for the industries, survival analysis and Bayesian inference.

This programme aims at producing highly skilled manpower for academics, R & D and industrial organizations to solve outstanding problems arising out of rapid growth and will bridge the gap between supply and demand of academicians and researchers of the field.

2. FACULTY POSITIONS

Department of Department of Mathematics, Statistics and Computer Science has the following budgeted strength:

Sr. No.	Post	Number at present	Vacant
1.	Professor	06	01
2.	Associate Professor	01	03
3.	Assistant Professor / J.R.O.	02	04

PRESENT FACULTY POSITIONS

Sr. No.	Name	Designation	Qualification	Accredited for Ph.D. Research
1.	Dr. A. K. Shukla	Professor & Head	Ph.D.	Yes
2.	Dr. Manoj Kumar	Professor	Ph.D.	Yes
3.	Dr. S.B. Singh	Professor	Ph.D.	Yes
4.	Dr. Vinod Kumar	Professor	Ph.D.	Yes
5.	Dr. Haseen Ahmad	Professor	Ph.D.	Yes
6.	Dr. A. K. Pal	Professor	Ph.D.	Yes
7.	Dr. Sanjay Kumar	Assoc. Professor	Ph.D.	Yes
8.	Mr. R.S. Rajput	Asstt. Professor	M.Sc., M.Phil.	No
9.	Dr. S.B. Bhardwaj	J.R.O.	Ph.D.	No

3. RESEARCH FACILITIES

The following well-equipped laboratories and library, which are part of college of Basic Sciences and Humanities, will be utilized for academic purposes besides Library, CCF and other facilities available in the University.

- Linux Lab
- UG Computer Lab
- PG Computer Lab
- Departmental Library

4. COLLABORATION WITH OTHER DEPARTMENTS AND INSTITUTIONS:

This programme will run in collaboration with other allied subjects/departments e.g. Mathematics, Agricultural Economics, and Computer Engineering etc. of the University

5. RESEARCH AREAS

Statistics has several specializations because of its very wide nature e.g. Statistical Modelling, Sampling Techniques, Design of Experiments, Theory of Probability, Statistical Inference, Bayesian Inference, Reliability, Multivariate Analysis etc. But Considering the immediate requirements of the field and the capabilities of the faculty, the department will focus initially on Statistical Modelling, Applied Statistics, Reliability and Life Testing and Bayesian Inference.

6. NUMBER OF SEATS PROPOSED: Three (03)

Three (03) regular plus sponsored candidates as per University norms from ICAR approved Institutions and staff candidates. The system of reservation of seats would be same as applicable to other disciplines of University.

7. NUMBER OF SEMESTERS: 06 (Normal Duration)

8. FINANCIAL REQUIREMENTS

The programme will be run by existing infrastructure and the faculty members of the department. No additional financial assistance/faculty beyond the sanctioned seats is needed to run this programme.

9. ELIGIBILITY QUALIFICATION FOR ADMISSION

Programme	Minimum Qualification
Ph. D. (Statistics/Agricultural Statistics)	M.Sc. Statistics/Agricultural Statistics/M.Sc. Applied Statistics with minimum 55% marks from a reputed University. The students having M.Sc. Statistics/M.Sc. Applied Statistics will be awarded Ph.D. with major in Statistics and those having M.Sc. Agricultural Statistics will be awarded Ph.D. with major in Agricultural Statistics.

9. Mode of Admission : University Entrance Examination

10. Fee Structure : As per University Rules

Other guidelines will be applicable to this programme as per university rules.

Course Programme and Curriculum for Ph.D. Statistics /Agricultural Statistics

A. Core Courses **11 Credits**

1	BPS-602	Simulation Techniques (New)	3(2-0-1)
2	BPS-611	Advanced Statistical Methods (New)	3(2-0-1)
3	BPS-619	Survival Analysis and Bayesian Inference (New)	3(3-2-0)
4	BPS-788	Doctoral Seminar I	1
5	BPS-788	Doctoral Seminar II	1

B. Basic Supporting Courses **4 Credits**

1	BHS-652	Research Methodology-I (Existing)	1
2	BPS-653	Research Methodology-II (Existing)	3

C. Optional Courses **5 Credits**

D. Minor Courses **10 Credits**

E. Ph.D. Thesis Research **45 Credits**

Total **75 Credits**

LIST OF POSTGRADUATE COURSES IN THE DEPARTMENT : 75

(A) MATHEMATICS

Sl No	Course No.	Title of the Course	Credits	Offered to Colleges/ Programmes
1.	*BPM-409	Basic Mathematics	4(4-2-0)	Agriculture
2.	BPM-501	Linear Algebra & Advanced Calculus	3(3-2-0)	Agriculture, CBSH
3.	BPM-511	Mechanics and Variational Principles	3(3-2-0)	CBSH, Technology
4.	BPM-531	Real Analysis	3(3-2-0)	M.Sc., Mathematics
5.	BPM-532	Differential Geometry and Tensors	3(3-2-0)	-do-
6.	BPM-533	Topology	3(3-2-0)	-do-
7.	BPM-534	Complex Analysis	3(3-2-0)	CBSH, Technology
8.	BPM-535	Differential Equations	3(3-2-0)	-do-
9.	BPM-536	Abstract Algebra	3(3-2-0)	-do-
10.	BPM-602	Special functions & Integral Equation	2(2-1-0)	-do-
11.	BPM-604	Difference, Differential Equations & Topology	3(3-2-0)	Agriculture, CBSH
12.	BPM-607	Transformations & Calculus of Variations	2(2-1-0)	CBSH, Technology
13.	BPM-635	Functional Analysis	3(3-2-0)	M.Sc. Mathematics
14.	BPM-681	Mathematical Methods	3(3-1-0)	
15.	BPM-711	Mathematical Modeling	3(3-2-0)	Ph.D. Maths, Technology
16.	BPM-713	Boundary Value Problems	3(3-2-0)	-do-
17.	BPM-731	Advanced Analysis	3(3-2-0)	Ph.D. Mathematics
18.	BPM-732	Integral Transforms and Z-transforms	3(3-2-0)	Ph.D. Mathematics
19.	BPM-734	Differentiable Manifolds	2(2-1-0)	Ph.D. Mathematics
20.	BPM-737	Special Functions	3(3-2-0)	Ph.D. Mathematics
21.	BPM-788	Doctoral Seminar –I	1	Ph.D. Mathematics
22.	BPM-788	Doctoral Seminar –II	1	Ph.D. Mathematics
23.	BPM-600	Seminar	1	M.Sc. Mathematics
24.	BPM-601	Special Problem	1	M.Sc. Mathematics
25.	BPM-690	Masters Thesis	15	M.Sc. Mathematics
26.	BPM-790	Ph.D. Thesis	30	Ph.D. Mathematics

(B) Statistics/Agricultural Statistics

1.	*BPS-401	Probability Theory	2(2-1-0)	M.Sc. Agril Stats.
2.	*BPS-402	Statistical Inference	3(2-0-1*3)	-do-
3.	*BPS-403	Experimental Designs & Sampling Methods	3(2-0-1*3)	-do-
4.	*BPS-404	Applied statistics and regression analysis	3(2-0-1*3)	-do-

5.	**BPS-561	Statistical Methods	3(2-0-1*3)	All Colleges PG Students
6.	BPS-571	Probability Theory and Distributions	2(2-2-0)	M.Sc. Agril. Stats.
7.	BPS-572	Design of Experiments-I	4(2-0-2*3)	-do-
8.	BPS-573	Design of Experiments-II	3(2-0-1*3)	-do-
9.	BPS-574	Sampling Techniques-I	3(2-0-1*3)	-do-
10.	BPS-575	Sampling Techniques-II	3(2-0-1*3)	-do-
11.	BPS-576	Estimation & Statistical Hypotheses Testing	4(3-1-1*3)	-do-
12.	BPS-577	Multivariate Analysis and Official Statistics	3(2-0-1*3)	-do-
13.	BPS-606	Computer Application in Biometrics	2(0-0-2*3)	All Colleges PG Students
14.	BPS-651/ BHS-651	Research Methodology	2(1-0-1*3)	All Colleges PG Students
15.	BPS-653	Research Methodology-II	3(2-0-1x3)	All Colleges PG Students
16.	**BPS-661	Experimental Statistics	4(3-0-1*3)	All Colleges PG Students
17.	BPS-662	Advanced Experimental Designs	3(2-0-1*3)	All Colleges PG Students
18.	BPS-663	Linear Models	2(2-1-0)	All Colleges PG Students
19.	BPS-669	Operations Research	3(3-1-0)	All Colleges PG Students
20.	BPS-671	Theory of Sampling	3(2-0-1*3)	All Colleges PG Students
21.	BPS-672	Mathematical Statistics	3(3-1-0)	All Colleges PG Students
22.	BPS-681	Data Analysis and Forecasting	3(3-1-0)	-
23.	BPS-600	Seminar	1	All Colleges PG Students
24.	BPS-601	Special problems	1	All Colleges PG Students
25.	BPS-690	Master's Thesis/Research	15	M.Sc. Agricultural Statistics/ Statistics

* Non gradial courses

**Only one of the Courses from BPS-561 & BPS-661 will be included in the course programme.

(C) Computer Science

1.	BPM-502	Introduction to Computers & Programming	2(1-0-1*2)	All College PG Students
2.	BPM-503	Discrete Mathematical Structures	3(3-2-0)	M.Sc. Comp. Sci.
3.	BPM-504	Data Processing	3(2-0-1*3)	-do-
4.	BPM-538	Relational Data Base Management System	3(2-1-1*2)	CBSH, Agril. Stats.
5.	BPM-540	Design and Analysis of algorithm	3(3-2-0)	M.Sc. Comp. Sci.
6.	BPM-551	Foundation of Theoretical Computer Science	3(3-2-0)	M.Sc. Comp. Sci.
7.	BPM-552	Programming Language concepts	3(3-2-0)	M.Sc. Comp. Sci.
8.	BPM-553	Expert systems	3(3-2-0)	M.Sc. Comp. Sci.
9.	BPM-600	Seminar	1	M.Sc. Comp. Sci.
10.	BPM-601	Special Problem	1-2	M.Sc. Comp. Sci.
11.	BPM-605	Use of Computer Software	2(0-0-2*3)	All college PG Students
12.	BPM-611	Boundary Value Problems, Integral Equations and Numerical Analysis	3(3-2-0)	M.Sc. Mathematics
13.	BPM-615	Computational Fluid dynamics	3(3-2-0)	M.Sc. Mathematics
14.	BPM-621	Numerical Techniques for Computers	3(3-2-0)	CBSH, Agriculture, Technology
15.	BPM-622	Numerical Solution of Partial Differential Equations	3(3-2-0)	CBSH, Technology
16.	BPM-623	Computer Networks	2(1-1-1*3)	M.Sc. Comp. Sci.
17.	BPM-641	Object Oriented Programming	3(2-1-1*2)	CBSH, Agriculture, Technology
18.	BPM-642	Structured Programming Languages	3(2-1-1*2)	-do-
19.	BPM-644	Prolog	3(2-0-1*3)	M.Sc. Comp. Sci.
20.	BPM-651	Computer Graphics	2(1-1-1*3)	M.Sc. Comp. Sci.
21.	BPM-652	Elements of Computer operating systems	3(2-0-1*3)	CBSH, Technology, Agriculture
22.	BPM-653	Principles of compiler design	4(4-2-0)	M.Sc. Comp. Sci.
23.	BPM-655	Management Information System	3(2-0-1*2)	M.Sc. Comp. Sci.
24.	BPM-690	Master's Thesis Research	15	M.Sc. Comp. Sci.

PROPOSAL FOR A NEW COURSE-1

1.	**College**	College of Basic Sciences & Humanities
2.	**Department**	Mathematics, Statistics and Computer Science
3.	**Title of the Course & Course No.**	**Simulation Techniques BPS-602**
4.	**Catalogue Description**	Review of simulation methods, random number generation using simulation methods – for various probability models, Re-sampling methods: theory and application of the Jackknife and the bootstrapping, Non-parametric randomization tests and their applications using computer software packages, Simulating multivariate distributions, MCMC methods and Gibbs sampling, Simulated data sets to be analyzed using R computer software, Stochastic simulation: Markov Chain, Monte Carlo, Gibbs' sampling, Hastings-Metropolis algorithms, EML algorithm, Cluster analysis, dimension reduction, auxiliary variables.
5.	**To be offered**	Core course for Ph.D. Statistics/Agricultural Statistics students and optional/minor for other Ph.D. students
6.	**Credits**	**3(2-0-1×3)**
7.	**Is this New Course?**	Yes
8.	**Curricular purpose of the course**	Core course for Ph.D. Statistics/Agricultural Statistics students
9.	**General educational purpose of the course** a. General Education b. Departmental specialization c. Student Research d. Outgrowth of instructors research programme, past or present. e. Why could the educational purpose of this course not offered to meet the requirement be achieved by the modification of a course now being given; please specify	 Yes Yes Yes Yes Presently no such course is being offered by the department
10.	**Relation to other courses** a. Pre-requisite b. Is the course a pre-requisite of any course c. An introductory survey of knowledge represented by the department d. An introductory survey of a special area of knowledge e. A further development of course described under c & d f. An introductory survey of a special area of knowledge represented by some other department g. A summarizing or integrated course h. In your judgment does this course overlap to a considerable extent with any other course	 Nil No Yes Yes Yes NA No No
11.	**What are the urgent reasons why this course should be offered at the present time**	It is being proposed as a core course for the students of Ph.D. Statistics/Agricultural Statistics to enhance their knowledge to meet out the current challenges in the relevant field
12.	**Is this course intended to replace an existing course or courses?**	No
13	**The course will not require additional staff over and above**	Yes
14	**What is the exact place of this course in the development of the educational programme of your department**	This course has got an utmost importance nowadays to strengthen the knowledge of actually utilizing the recently developed complicated statistical models.
15	**Topic outline: Lecture**	As per Enclosure-1
16	**Practical**	As per Enclosure -1
17	**Text book and Supplementary readings**	As per Enclosure -1
18.	**Class room, Laboratory and other facilities**	Existing
19.	**Would the introduction of this course require additional staff**	No, course will be taught by existing staff of Department of Mathematics, Statistics & Computer Science
20	**Sequence of action**	Proposal formulated by the Department of Mathematics, Statistics & Computer
21	**Approved by**	Several external experts of the relevant field belonging to different reputed Institutions/Universities

Enclosure - I

Course No : BPS-602
Course Title : Simulation Techniques
Credit Hrs. : 3(2-0-1×3)
Pre-requisite : Nil

I. Catalogue Description:

Review of simulation methods, random number generation using simulation methods – for various probability models, re-sampling methods: theory and application of the Jackknife and the bootstrapping, non-parametric randomization tests and their applications using computer software packages, simulating multivariate distributions, MCMC methods and Gibbs sampling, Simulated data sets to be analyzed using R computer software, stochastic simulation: Markov Chain, Monte Carlo, Gibbs' sampling, Hastings-Metropolis algorithms, EML algorithm, cluster analysis, dimension reduction, auxiliary variables.

II. Course Outline

Sl No.	Topics A-Lectures	No. of Lectures
1.	**Review and Implementation of Simulation Methods**: Some Aspects of Simulation Models, Random number generation using simulation methods for various probability models such as normal, beta, gamma, exponential, Weibull etc.	7
2.	**Re-Sampling methods**: Application of Jackknife and Bootstrap methods, tests of randomization, use of computer softwares for these methods.	7
3.	**Various simulating methods**: Simulation in multivariate normal distribution, MCMC methods, Gibbs sampling.	5
4.	**Analysis of Data**: Analysis of simulated data sets through computer softwares (R-Software, MATLAB)	4
5.	**Stochastic Simulation**: Markov chain, Monte Carlo and Gibb's Sampling	3
6.	**Hasting-Metropolis Algorithms:** The Principles of the methodology on simple examples with R codes and EML algorithm, cluster analysis, auxiliary variables	6
	Total =	**32**

Sl No.	Topics B-Practicals	No. of Labs
1.	**Simulation Methods:** Generating random samples from probability distributions and to estimate their parameters and statistical constants through simulation.	5
2.	**Resampling Methods:** Use of simulation techniques for Jackknife and Bootstrap methods and randomization tests	3
3.	**Simulating Methods for Statistical Models:** Generating random samples from multivariate normal distribution, the use of simulation in MCMC Methods, Gibbs sampling	5
4.	**Stochastic Simulation:** The Use of Simulation for solving some stochastic problems using R software	3
	Total =	**16**

III. Books Recommended:

1. Averill ML, Kelton D. 2005. Simulation, Modeling and Analysis. Tata McGraw Hill.
2. Balakrishnan N, Melas VB & Ermakov S. (Ed.). 2000. Advances in Stochastic Simulation Methods. Basel-Birkhauser.
3. Banks J. (Ed.). 1998. Handbook of Simulation: Principles, Methodology, Advances, Applications and Practice. John Wiley.
4. Gentle JE. 2005. Random Number Generation and Monte Carlo Methods. Springer.
5. Kleijnen J & Groenendaal WV. 1992. Simulation: A Statistical Perspective. John Wiley.
6. Kleijnen J. 1974 (Part I), 1975 (Part II). Statistical Techniques in Simulation. Marcel Dekker.
7. Law A & Kelton D. 2000. Simulation Modeling and Analysis. McGraw Hill.
8. Ripley BD. 1987. Stochastic Simulation. John Wiley.
9. Ross SM. 1997. Simulation. John Wiley.

PROPOSAL FOR A NEW COURSE-2

1.	**College**	College of Basic Sciences & Humanities
2.	**Department**	Mathematics, Statistics and Computer Science
3.	**Title of the Course & Course No.**	**Advanced Statistical Methods BPS-611**
4.	**Catalogue Description**	Introduction to the theory and applications of generalized linear models, fixed effects, random effects and mixed effects models, estimation of variance components from unbalanced data, unified theory of least squares, quasi-likelihoods and generalized estimating equations -logistic regression, over-dispersion, Poisson regression, Ridge regression, least absolute deviation regression, non parametric regression, log-linear models, conditional likelihoods, generalized mixed models, regression diagnostics, fitting of a generalized linear model, mixed model and variance components estimation.
5.	**To be offered**	Core course for Ph.D. Statistics/Agricultural Statistics students and optional/minor for other Ph.D. students
6.	**Credits**	**3(2-0-1×3)**
7.	**Is this New Course?**	Yes
8.	**Curricular purpose of the course**	Core course for Ph.D. Statistics/Agricultural Statistics students
9.	**General educational purpose of the course** f. General Education g. Departmental specialization h. Student Research i. Outgrowth of instructors research programme, past or present. j. Why could the educational purpose of this course not offered to meet the requirement be achieved by the modification of a course now being given; please specify	 Yes Yes Yes Yes Presently no such course is being offered by the department and the course contents of this course do not match with course contents of already existing course of the department.
10.	**Relation to other courses** a. Pre-requisite b. Is the course a pre-requisite of any course c. An introductory survey of knowledge represented by the department d. An introductory survey of a special area of knowledge e. A further development of course described under c & d f. An introductory survey of a special area of knowledge represented by some other department g. A summarizing or integrated course h. In your judgment does this course overlap to a considerable extent with any other course	 Nil No Yes Yes Yes NA No No
11.	**What are the urgent reasons why this course should be offered at the present time**	It is being proposed as a core course for the students of Ph.D. Statistics/Agricultural Statistics to acquaint them with the most advanced statistical methods being used nowadays.
12.	**Is this course intended to replace an existing course or courses?**	No
13	**The course will not require additional staff over and above**	Yes
14	**What is the exact place of this course in the development of the educational programme of your department**	This course is being run by most of the universities/Institutes to enhance and strengthen the knowledge of latest research techniques.
15	**Topic outline: Lecture**	As per Enclosure –II
16	**Practical**	As per Enclosure- II
17	**Text book and Supplementary readings**	As per Enclosure-II
18.	**Class room, Laboratory and other facilities**	Existing
19.	**Would the introduction of this course require additional staff**	No, course will be taught by existing staff of Dept. of Mathematics, Statistics & Computer Science
20	**Sequence of action**	Proposal formulated by the Department of Mathematics, Statistics & Computer
21	**Approved by**	Several external experts of the relevant field belonging to different reputed Institutions/Universities

Enclosure - II

Course No : BPS-611
Course Title : Advanced Statistical Methods
Credit Hrs. : 3(2-0-1×3)
Pre-requisite : Nil

I. Catalogue Description:

Introduction to the theory and applications of generalized linear models, fixed effects, random effects and mixed effects models, estimation of variance components from unbalanced data, Unified theory of least squares, quasi-likelihoods and generalized estimating equations -logistic regression, over-dispersion, Poisson regression, Ridge regression, least absolute deviation regression, non parametric regression, log-linear models, conditional likelihoods, generalized mixed models, regression diagnostics, fitting of a generalized linear model, mixed model and variance components estimation.

II. Course Outline

Sl No.	Topics A-Lectures	No. of Lectures
1.	**Generalized Linear Models:** Introduction to the theory and applications of generalized linear models, fixed effects, random effects and mixed effects models, Estimation of variance components from unbalanced data, **U**nified theory of least squares, Quasi-likelihoods and their applications	8
2.	**Generalized estimating equations**: Logistic regression, Over-dispersion, Poisson regression, Ridge regression: Basic form, Use as a selection procedure, Robust regression, Least absolute deviation regression with theory and applications	8
3.	**Non-Parametric Regression**: Introduction and its application to the log-linear models, Conditional likelihoods, Non-parametric maximum likelihood estimation.	5
4.	**Mixed Models**: Generalized mixed models and regression diagnostics along with their applications, Theory of statistical methods for analyzing categorical data by means of linear models.	5
5.	**Fitting of Models** : Fitting of generalized linear models, mixed models and variance components estimation, Fitting of logistic regression, Poisson regression, Ridge regression, Robust regression and non-parametric regression	6
	Total =	**32**

Sl No.	Topics B-Practicals	No. of Labs
1.	**Fitting of Models I:** Fitting of Generalized Linear Models, Mixed Models and Variance Components Estimation.	4
2.	**Fitting of Models II**: Fitting of Logistic Regression, Poisson Regression, Ridge Regression, Robust Regression and Non-Parametric Regression.	8
3.	**Estimators**: M-Estimators, Non-Parametric Maximum Likelihood Estimation	4
	Total =	**16**

III. Books Recommended:

1. Chatterjee S, Hadi A & Price B.1999. Regression Analysis by Examples. John Wiley.
2. Draper NR & Smith H. 1998. Applied Regression Analysis. 3rd Ed. John Wiley.
3. Rao CR. 1965. Linear Statistical Inference and its Applications. 2nd Ed. John Wiley.
4. Searle SR, Casella G & McCulloch CE. 1992. Variance Components. John Wiley.
5. Searle SR. 1971. Linear Models. John Wiley.

PROPOSAL FOR A NEW COURSE - 3

1.	**College**	College of Basic Sciences & Humanities
2.	**Department**	Mathematics, Statistics and Computer Science
3.	**Title of the Course & Course No.**	**Survival Analysis and Bayesian Inference BPS-619**
4.	**Catalogue Description**	Survival distributions: survival functions, hazard rate, hazard function, Review of survival distributions: exponential, Weibull, gamma, Rayleigh, Pareto, lognormal~ IFR and TFRA, Gompertz and Makeham, Gompertz and logistic distributions, Types of censoring: type I, type II, random and other types of censoring, right and left truncated distributions, Series and parallel system of failures, Fitting of parametric survival distributions : special form of survival function, cumulative hazard function (CHF) plots, Nelson's method of ungrouped data, Construction of the likelihood function for survival data, Least squares fitting, Fitting a Gompertz distribution to grouped data, General parametric model for hazard function with observed concomitant variables, Additive and multiplicative models of hazard rate functions, Estimating multiplicative models, Selection of concomitant variables, Logistic linear model, Concomitant variable regarded as a random variable, Gompertz distribution, parallel system and Weibull distribution, Fatal short models of failure, two component series system, Prior and posterior distributions, Conjugate priors, Non-informative priors, Bayes estimation under squared error loss function (SELF), Bilinear loss function, LINEX loss function and intrinsic loss functions, Hypotheis testing – Jeffereys' and Lindley's approaches.
5.	**To be offered**	Core course for Ph.D. Statistics/Agricultural Statistics students and optional/minor for other Ph.D. students
6.	**Credits**	**3(2-0-1×3)**
7.	**Is this New Course?**	Yes
8.	**Curricular purpose of the course**	Core course for Ph.D. Statistics/Agricultural Statistics students
9.	**General educational purpose of the course** a. General Education b. Departmental specialization c. Student Research d. Outgrowth of instructors research programme, past or present. e. Why could the educational purpose of this course not offered to meet the requirement be achieved by the modification of a course now being given; please specify	 Yes Yes Yes Yes Presently no such course is being offered by the department and the course contents of this course do not match with course contents of any existing course of the department.
10.	**Relation to other courses** a. Pre-requisite b. Is the course a pre-requisite of any course c. An introductory survey of knowledge represented by the department d. An introductory survey of a special area of knowledge e. A further development of course described under c & d f. An introductory survey of a special area of knowledge represented by some other department g. A summarizing or integrated course h. In your judgment does this course overlap to a considerable extent with any other course	 Nil No Yes Yes Yes NA No No
11.	**What are the urgent reasons why this course should be offered at the present time**	It is being proposed as a core course for the students of Ph.D. Statistics/Agricultural Statistics to acquaint them with the most advanced statistical methods being used nowadays.
12.	**Is this course intended to replace an existing course or courses?**	No
13	**The course will not require additional staff over and above**	Yes
14	**What is the exact place of this course in the development of the educational programme of your department**	This course is being run by most of the universities/Institutes to enhance and strengthen the knowledge of latest techniques in the field of survivability and Bayesian Statistics.
15	**Topic outline: Lecture**	As per Enclosure –III
16	**Practical**	As per Enclosure-III
17	**Text book and Supplementary readings**	As per Enclosure-III
18.	**Class room, Laboratory and other facilities**	Existing
19.	**Would the introduction of this course require additional staff**	No, course will be taught by existing staff of Dept. of Mathematics, Statistics & Computer Science
20	**Sequence of action**	Proposal formulated by the Department of Mathematics, Statistics & Computer
21	**Approved by**	Several external experts of the relevant field belonging to different reputed Institutions/Universities

Enclosure -III

Course No : BPS-619

Course Title : Survival Analysis and Bayesian Inference
Credit Hrs. : 3(2-0-1×3)
Pre-requisite : Nil

I. Catalogue Description:

Survival distributions: survival functions, hazard rate, hazard function, Review of survival distributions: exponential, Weibull, gamma, Rayleigh, Pareto, lognormal~ IFR and TFRA, Gompertz and Makeham, Gompertz and logistic distributions, Types of censoring: type I, type II, random and other types of censoring, right and left truncated distributions, Series and parallel system of failures, Fitting of parametric survival distributions : special form of survival function, cumulative hazard function (CHF) plots, Nelson's method of ungrouped data, Construction of the likelihood function for survival data, Least squares fitting, Fitting a Gompertz distribution to grouped data, General parametric model for hazard function with observed concomitant variables, Additive and multiplicative models of hazard rate functions, Estimating multiplicative models, Selection of concomitant variables, Logistic linear model, Concomitant variable regarded as a random variable, Gompertz distribution, parallel system and Weibull distribution, Fatal short models of failure, two component series system, Prior and posterior distributions, Conjugate priors, Non-informative priors, Bayes estimation under squared error loss function (SELF), Bilinear loss function, LINEX loss function and intrinsic loss functions, Hypotheis testing – Jeffereys' and Lindley's approaches.

II. Course Outline

Sl No.	Topics A-Lectures	No. of Lectures
1.	**Survival Distributions**: Survival functions, Hazard rate, Hazard function, Review of Survival Distributions: Exponential, Weibull, Gamma, Rayleigh, Pareto, Lognormal~ IFR And TFRA, Gompertz and Makeham, Gompertz and Logistic Distributions.	6
2.	**Censoring**: Meaning and their Types, Type I, Type II, Random and other types of censoring, Right and left truncated distributions, Series and parallel system of failures.	4
3.	**Fitting of Parametric Survival Distributions** : Special form of survival function, cumulative hazard function (CHF) plots, Nelson's method of ungrouped data, Construction of the likelihood function for survival data, Least squares fitting, Fitting a Gompertz distribution to grouped data.	6
4	**Concomitant variables**: general parametric model for hazard function with observed concomitant variables, additive and multiplicative models of hazard rate functions, Estimating multiplicative models, selection of concomitant variables, logistic linear model, concomitant variable regarded as a random variable, Gompertz distribution, parallel system and Weibull distribution, Fatal short models of failure, two component series system.	6
4.	**Bayesian Estimation**: Prior and Posterior Distributions, Conjugate Priors, Non-Informative Priors, Bayes Estimation under Squared Error Loss Function (SELF), Bilinear Loss Function, Linex Loss Function and Intrinsic Loss Functions.	6
5.	**Bayesian Approach of Testing of Hypotheses**: Hypotheses testing using Jeffereys' and Lindley's approaches and applications of these approaches in survival distributions.	4
	Total =	**32**

S No.	Topics B-Practicals	No. of Labs
1.	**Fitting of Survival Distributions I:** Fitting of Exponential, Weibull, Gamma, Rayleigh, Pareto, Lognormal distributions for statistical data and testing their goodness of fit.	8
2.	**Fitting of Survival Distributions II:** Fitting of Gompertz, and Makeham, Gompertz and Logistic distributions for statistical data and testing their goodness of fit.	5
4.	**Bayesian Inference**: Hypothesis Testing using Jeffereys' and Lindley's Approaches for lifetime data	3
	Total =	**16**

III. Books Recommended:

1. Bansal, A.K. 2007. Bayesian Parametric Inference, Narosa Publishing House, New Delhi.
2. Collett D. 2003. Modeling Survival Data in Medical Research. Chapman & Hall.
3. Cox DR & Oakes D. 1984. Analysis of Survival Data. Chapman & Hall.
4. Elandt-Johnson RC & Johnson NL. 1980. Survival Models and Data Analysis. John Wiley.
5. Everitt BS & Dunn G. 1998. Statistical Analysis of Medical Data. Arnold.
6. Kalbfleisch JD & Prentice. RL 2002. The Statistical Analysis of Failure Time Data. John Wiley.
7. Klein JP & Moeschberger ML. 2003. Survival Analysis: Techniques for Censored and Truncated Data. Springer.
8. Kleinbaum DG & Klein M. 2005. Survival Analysis. Springer.
9. Lawless JF. 2003. Statistical Models and Methods for Lifetime Data. 2nd Ed. John Wiley.
10. Lee ET. 1980. Statistical Methods for Survival Data Analysis. Lifetime Learning Publ.
11. Sinha, S.K. 1986. Reliability and Life Testing, Wiley Eastern Ltd., New Delhi

Minutes of the Departmental Meeting

Regarding Proposal and Course Contents of Ph.D.

Programme in

Statistics/Agricultural Statistics

DEPARTMENT OF MATHEMATICS, STATISTICS AND COMPUTER SCIENCE
COLLEGE OF BASIC SCIENCES AND HUMANITIES

DEPARTMENT OF MATHEMATICS, STATISTICS AND COMPUTER SCIENCE
COLLEGE OF BASIC SCIENCES AND HUMANITIES

No. CBSH/MSCS/887
Dated: 28-09-2019

NOTICE

A meeting of all the faculty members of the department is scheduled to be held today i.e. 28-09-2019 at 4:00pm in the office of the undersigned to discuss the proposal and the course contents for beginning Ph.D. Programme in Statistics/ Agricultural Statistics.

You are requested to make it convenient to attend the same.

28-9-19

(A.K. Shukla)
Professor & Head

Copy to: All Faculty Members of Department.

Minutes of the meeting of the faculty members of the Department of Mathematics, Statistics and Computer Science, held on 28-09-2019 at 4:00 pm in the office of Head of the Department

Dispatch no. 888 Date 28/9/19

Following faculty members attended the meeting:

1. Dr. A.K. Shukla	Professor & Head
2. Dr. Manoj Kumar	Professor
3. Dr. S.B. Singh	Professor
4. Dr. Vinod Kumar	Professor
5. Dr. Haseen Ahmad	Professor
5. Dr. A.K. Pal	Professor
6. Dr. Sanjay Kumar	Associate Professor
7. Mr. R.S. Rajput	Assistant Professor

The meeting started with the welcome of all the faculty members of the department. Thereafter, thorough discussions were held regarding the proposal of beginning new Ph.D. programme in Statistics/ Agricultural Statistics and on the comments received from external experts of different Universities. All the faculty members agreed on the proposal and the following proposed courses:

A. Core Courses **11 Credits**

1	BPS-602	Simulations Techniques	3(2-0-1)	New Course
2	BPS-611	Advanced Statistical Methods	3(2-0-1)	New Course
3	BPS-619	Survival Analysis and Bayesian Inference	3(3-2-0)	New Course
4	BPS-788	Doctoral Seminar-I	1	-
5.	BPS-789	Doctoral Seminar-II	1	-

B. Basic Supporting Courses **4 Credits**

1	BHS-652	Research Methodology-I	1	Already Approved Course
2	BPS-653	Research Methodology-II	3	Already Approved Course

C. Optional Courses **5 Credits**

D. Minor Courses **10 Credits**

E. Ph.D. Thesis Research 45 credits

Further discussions were held on the comments received from outside experts and the members agreed to incorporate the suggestions in the course contents of newly proposed courses BPS-602, BPS-611, BPS-619.

Meeting ended with the vote of thanks by the chairman.

(R.S. Rajput) Member	(Sanjay Kumar) Member	(A.K. Pal) Member	(Dr. Haseen Ahmad) Member
(Vinod Kumar) Member	(S.B. Singh) Member	(Manoj Kumar) Member 28/9/19	(A.K. Shukla) Chairman

Comments of External Experts

Sl.	Name & Designation of Expert	University / Institution	Page No
1.	Dr. Shalabh Professor (Statistics)	Department of Mathematics and Statistics, IIT, Kanpur	17–21
2.	Dr. Rajesh Singh Professor (Statistics)	Department of Statistics, Indian Institute of Science, BHU, Varanasi	22
3.	Dr. Kanchan Jain, Professor(Statistics)	Department of Statistics, Panjab University , Chandigarh	23
4.	Dr. Med Ram Verma Principal Scientist (Statistics)	Indian Veterinary Research Institute (IVRI) Izzatnagar, Bareilly, (U.P.)	24–25
5.	Dr. Sheela Mishra, Professor(Statistics) & Head	Department of Statistics University of Lucknow, Lucknow	26
6.	Dr. Rakesh Gupta, Professor (Statistics)	Department of Statistics Ch. Charan Singh University, Meerut	27
7.	Dr. K.N. Singh Head	Division of Forecasting and Agricultural Systems Modeling, Indian Agricultural Statistics Research Institute (IASRI), New Delhi	28–33
8.	Dr. S.C. Malik Professor (Statistics)	Department of Statistics, M.D. University Rohtak, Haryana	34 –37

तार : Telegram TECHNOLOGY KANPUR फैक्स : Fax : (0512) 259 7500, 259 0260 ✆(O) : 0512-259 7500, 7636, 7456

भारतीय प्रौद्योगिकी संस्थान कानपुर
INDIAN INSTITUTE OF TECHNOLOGY KANPUR
गणित एवं सांख्यिकी विभाग
DEPARTMENT OF MATHEMATICS AND STATISTICS

आई.आई.टी., कानपुर-208 016 (भारत)
I.I.T., KANPUR-208 016 (India)

To

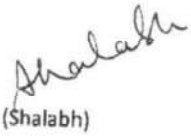
January 3, 2019

Professor A.K. Shukla
Professor & Head,
Department of Mathematics, Statistics and Computer Science,
G.B. Pant University of Agriculture & Technology,
Pantnagar

Dear Professor Shukla,

In response to your email dated January 2, 2019 about the syllabus of the proposed Ph.D. Programme in Statistics in your department, the revised syllabus is recommended to be adopted.

Kind regards



(Shalabh)
Professor
Pandit Girish Ranjan and Sushama Rani Pathak Chair Professor
Department of Mathematics & Statistics
Indian Institute of Technology
Kanpur - 208016 (INDIA)
Phone (Work): (91) (512) 2597905, 2597636
Phone (Home): (91)(512) 2598238
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E-mail: shalab@iitk.ac.in
Homepage: http://home.iitk.ac.in/~shalab/

Ph.D. Agricultural Statistics / Statistics

Core Courses			**11 Credits**	
1	BPS-602	Simulations Techniques		3(2-0-1)
2	BPS-611	Advanced Statistical Methods		3(2-0-1)
3	BPS-619	Survival Analysis and Bayesian Inference		3(3-2-0)
4	BPS-788	Doctoral Seminar I		1
5	BPS-789	Doctoral Seminar II		1
Basic Supporting Courses			**4 Credits**	
1	BHS-652	Research Methodology-I		1
2	BPS-653	Research Methodology-II		3
Optional Courses			**5 Credits**	
Minor Courses			**10 Credits**	
BPS-790		**Thesis Research**	**45 Credits**	
Total			**75 Credits**	

Course Code: BPS 602
Course Title: Simulation Techniques
Credit Hours : 3 (2-0-1*3)

Course Catalogue

Review of simulation methods, random number generation using simulation methods – for various probability models, re-sampling methods: theory and application of the Jackknife and the bootstrapping, non-parametric randomization tests and their applications using computer software packages, simulating multivariate distributions, MCMC methods and Gibbs sampling, simulated data sets to be analyzed using R computer software, stochastic simulation: Markov Chain, Monte Carlo, Gibbs' sampling, Hastings-Metropolis algorithms, EML algorithm, cluster analysis, dimension reduction, auxiliary variables.

Lecture Schedule

Sl. No.	Topics	No. of Lectures/Lab
1.	Some aspects of simulation models, generating random numbers through simulation methods for various probability models such as normal, beta, gamma, exponential, Weibull etc.	7/3
2.	Resampling methods- application of Jackknife and bootstrap methods, non-parametric tests of randomization, use of computer softwares for these methods	7/3
3.	Simulation in multivariate normal distribution, MCMC methods, Gibbs sampling	5/3
4.	Analysis of simulated data sets through computer softwares (R-software, MATLAB)	4/2
5.	Stochastic simulation- Markov Chain, Monte Carlo and Gibb's sampling	3/1
6.	Hasting-Metropolis algorithms- the principles of the methodology with simple examples using R codes and entries to the recent extensions of the method, EML algorithm, cluster analysis, auxiliary variables	6/2
	Total	**32/14**

Books Recommended

Averill ML, Kelton D. 2005. Simulation, Modeling and Analysis. Tata McGraw Hill.

Balakrishnan N, Melas VB & Ermakov S. (Ed.). 2000. Advances in Stochastic Simulation Methods. Basel-Birkhauser.

Banks J. (Ed.). 1998. Handbook of Simulation: Principles, Methodology, Advances, Applications and Practice. John Wiley.

Gentle JE. 2005. Random Number Generation and Monte Carlo Methods. Springer.

Kleijnen J & Groenendaal WV. 1992. Simulation: A Statistical Perspective. John Wiley.

Kleijnen J. 1974 (Part I), 1975 (Part II). Statistical Techniques in Simulation. Marcel Dekker.

Law A & Kelton D. 2000. Simulation Modeling and Analysis. McGraw Hill.

Ripley BD. 1987. Stochastic Simulation. John Wiley.

Ross SM. 1997. Simulation. John Wiley.

Course Code: BPS 611
Course Title: Advanced Statistical Methods
Credit Hours : 3 (2-0-1*3)

Course Catalogue

Introduction to the theory and applications of generalized linear models, fixed effects, random effects and mixed effects models, estimation of variance components from unbalanced data, unified theory of least squares, quasi-likelihoods and generalized estimating equations -logistic regression, over-dispersion, Poisson regression, Ridge regression, least absolute deviation regression, non parametric regression, log-linear models, conditional likelihoods, generalized mixed models, regression diagnostics, fitting of a generalized linear model, mixed model and variance components estimation.

Lecture Schedule

Sl. No.	Topics	No. of Lectures/Lab
1.	Introduction to the theory and applications of generalized linear models, fixed effects, random effects and mixed effects models, estimation of variance components from unbalanced data	8/4
2.	Quasi-likelihoods, Generalized estimating equations-logistic regression, over-dispersion, Poisson regression, Ridge regression, least absolute deviation regression with theory and applications, M-estimators with theory and applications	9/3
3.	Non-parametric regression, log-linear models, conditional likelihoods	4/2
4.	Conditional likelihoods, generalized mixed models and regression diagnostics	4/2
5.	Fitting of generalized linear models, mixed models and variance components estimation	5/3
	Total	**30/14**

Books Recommended

Chatterjee S, Hadi A & Price B.1999. Regression Analysis by Examples. John Wiley.
Draper NR & Smith H. 1998. Applied Regression Analysis. 3rd Ed. John Wiley.
Rao CR. 1965. Linear Statistical Inference and its Applications. 2nd Ed. John Wiley.
Searle SR, Casella G & McCulloch CE. 1992. Variance Components. John Wiley.
Searle SR. 1971. Linear Models. John Wiley.

Course Code: BPS 619
Course Title: Survival Analysis and Bayesian Inference
Credit Hours : 3 (3-0-0)

Course Catalogue

Survival distributions: survival functions, hazard rate, hazard function, review of survival distributions: exponential, Weibull, gamma, Rayleigh, Pareto, lognormal~ IFR and TFRA, Gompertz and Makeham, Gompertz and logistic distributions, types of censoring: type I, type II, random and other types of censoring, right and left truncated distributions, series and parallel system of failures, fitting parametric survival distributions : special form of survival function, cumulative hazard function (CHF) plots, Nelson's method of ungrouped data, construction of the likelihood function for survival data, least squares fitting, fitting a Gompertz distribution to grouped data, general parametric model for hazard function with observed concomitant variables, additive and multiplicative models of hazard rate functions, estimating multiplicative models, selection of concomitant variables, logistic linear model, concomitant variable regarded as a random variable, Gompertz distribution, parallel system and Weibull distribution, fatal short models of failure, two component series system, prior and posterior distributions, conjugate priors, non-informative priors, Bayes estimation under squared error loss function (SELF), bilinear loss function, LINEX loss function and intrinsic loss functions, hypotheis testing – Jeffereys' and Lindley's approaches.

Lecture Schedule

Sl. No.	Topics	No. of Lectures
1.	Survival functions, hazard rate, hazard function, review of survival distributions: exponential, Weibull, Gamma, Rayleigh, Pareto, lognormal~ IFR and TFRA, Gompertz and Makeham, Gompertz and logistic distributions	9
2.	Types of censoring: Type I, Type II, random and other types of censoring, right and left truncated distributions, series and parallel system of failures	5
3.	Fitting Parametric Survival Distributions : Special form of survival function cumulative hazard function (CHF) plots, Nelson's method of ungrouped data, construction of the likelihood function for survival data, least squares fitting, fitting a Gompertz distribution to grouped data	7
4.	Concomitant variables: general parametric model for hazard function with observed concomitant variables, additive and multiplicative models of hazard rate functions, eastimating multiplicative models, selection of concomitant variables, logistic linear model, concomitant variable regarded as a random variable	8
7.	Gompertz distribution, parallel system and Weibull distribution, Fatal short models of failure, two component series system	4
8.	Prior and posterior distributions, conjugate priors, non-informative priors, Bayes estimation under squared error loss function (SELF), bilinear loss function, LINEX loss function and intrinsic loss function for various probability models	7
9.	Hypotheis testing – Jeffereys' and Lindley's approaches	5
	Total	**45**

Books Recommended

Collett D. 2003. Modeling Survival Data in Medical Research. Chapman & Hall.
Cox DR & Oakes D. 1984. Analysis of Survival Data. Chapman & Hall.
Elandt-Johnson RC & Johnson NL. 1980. Survival Models and Data Analysis. John Wiley.
Everitt BS & Dunn G. 1998. Statistical Analysis of Medical Data. Arnold.
Kalbfleisch JD & Prentice. RL 2002. The Statistical Analysis of Failure Time Data. John Wiley.
Klein JP & Moeschberger ML. 2003. Survival Analysis: Techniques for Censored and Truncated Data. Springer.
Kleinbaum DG & Klein M. 2005. Survival Analysis. Springer.
Lawless JF. 2003. Statistical Models and Methods for Lifetime Data. 2nd Ed. John Wiley.
Lee ET. 1980. Statistical Methods for Survival Data Analysis. Lifetime Learning Publ.
Bansal, A.K. 2007. Bayesian Parametric Inference, Narosa Publishing House, New Delhi.
Sinha, S.K. 1986. Reliability and Life Testing, Wiley Eastern Ltd., New Delhi

BANARAS HINDU UNIVERSITY
DEPARTMENT OF STATISTICS
INSTITUTE OF SCIENCE
VARANASI-221005

Rajesh Singh
Professor
Phone: 09453915592
rsinghstat@gmail.com

To,

Prof. A.K.Shukla

G.B. Pant University, Pantnagar

Dear Prof Shukla

I have read the syllabus for the proposed Ph.D. programme. The proposed course contents fro Ph.D. Statistics are upto the mark and the proposed Ph.D. programe may be carried out with these course contents.

With best wishes,

Sincerely

3.1.19

(Rajesh Singh)

Department of Statistics, Institute of Science

BHU, Varanasi

Gmail

mathematics, statistics and computer science cbsh <mscs.cbsh@gmail.com>

Recommendation regarding Ph.D. Agricultural Statistics/ Statistics Programme

Kanchan Jain <jaink14@gmail.com> Tue, Nov 20, 2018 at 8:17 AM
To: "mathematics, statistics and computer science cbsh" <mscs.cbsh@gmail.com>

Dear Prof. Shukla
Thanks for your mail.
I have gone through the contents of the core courses. My suggestions are:
-In Simulation Course, latest addition of Ross book on Simulation be added. It's fifth edition came out in 2012. The years of latest editions of few other old books can be searched. The students should be exposed to R Software which is freely available.

-In Bayesian Inference course, Bansal reference is not put as per alphabetical order. Get more books added on Bayesian. For 3 credit course, the contents seem to be lot as you are mixing survival and Bayesian Inference.

-In Advanced Statistical Methods Course,
get the reference on Logistic Regression added .
Moreover for Generalised Linear Models, the following book can be added to the list of references

Generalized Linear Models (Chapman & Hall/CRC Monographs on Statistics and Applied Probability) , 2nd Edition, 1989

by P. McCullagh **(Author)**, John A. Nelder **(Author)**

If the committee feels appropriate, Generalised Additive Models can be added. The references are

1. Generalized Additive Models (Chapman & Hall/CRC Monographs on Statistics & Applied Probability) 1st Edition

by T.J. Hastie **(Author)**, R.J. Tibshirani **(Author)** ,**1990**

2. Generalized Additive Models: An Introduction with R, Second Edition (Chapman & Hall/CRC Texts in Statistical Science) 2nd Edition by Simon Wood, 2017

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Best Regards
Kanchan Jain, MNASc
Professor
Deptt. of Statistics
Panjab University
Chandigarh-160014 (India)
+919872641634
+919814301634
RES: House No. 34, Sector 16,
Panchkula -134113 (India)
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mathematics, statistics and computer science cbsh <mscs.cbsh@gmail.com>

Recommendation regarding Ph.D. Agricultural Statistics/ Statistics Programme

Med Ram Verma <medramverma@rediffmail.com> Tue, Nov 20, 2018 at 12:48 PM
To: mscs.cbsh@gmail.com

Respected Sir,
Good day.

I congratulate the faculty members of Department of Mathematics, Statistics and Computer Science for the proposal to start Ph. D. Programme in Statistics/Agricultural Statistics. I have gone through the proposed syllabus for the Ph.D. programme in the discipline of Statistics. I have observed that the proposed syllabus is as per the syllabus recommended by ICAR for the Ph.D. programme in Statistics/Agricultural Statistics. So I am in agreement with the proposed syllabus. But I think if the following courses can be included in the syllabus as optional courses.

1. Advanced Experimental Designs
2. Advanced Sample Survey Designs
3. Statistical Modelling

So I completely agree with the proposed syllabus for the Ph.D. programme in the discipline of Statistics. In my opinion no modification in the proposed courses are required.

The same letter I have attached as an attachment in JPG format.

Thanks for giving me the opportunity to review your proposal.

with regards,

Dr. Med Ram Verma
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Division of Livestock Economics, Statistics and Information Technology
ICAR - Indian Veterinary Research Institute
Izatnagar-243122

Dr. Med Ram Verma
Ph.D. (Statistics)
Principal Scientist (Agrl. Statistics)
Division of LES & IT

Dated: 20.11.2018

Recommendation Letter

I congratulate the faculty members of Department of Mathematics, Statistics and Computer Science for the proposal to start Ph. D. Programme in Statistics/Agricultural Statistics. I have gone through the proposed syllabus for the Ph.D. programme in the discipline of Statistics. I have observed that the proposed syllabus is as per the syllabus recommended by ICAR for the Ph.D. programme in Statistics/Agricultural Statistics. So I am in agreement with the proposed syllabus. But the following courses can be included in the syllabus as optional courses.

1. Advanced Experimental Designs
2. Advanced Sample Survey Designs
3. Statistical Modelling

So I completely agree with the proposed syllabus for the Ph.D. programme in the discipline of Statistics. In my opinion no modification in the proposed courses are required. So I recommend the proposed syllabus for the Ph.D. Programme in the discipline of Statistics/Agricultural Statistics.

(Med Ram Verma)

Dr. M. R. VERMA
Principal Scientist
Division of LES & IT
ICAR-IVRI, Izatnagar (U.P)-243122

E-mail: medramverma@rediffmail.com Mobile: 09412565939
mrverma19@yahoo.co.in

UNIVERSITY OF LUCKNOW
STATISTICS DEPARTMENT

Fax/Phone: 0522-2740146

Prof. Sheela Misra
Head

Email- head.stats.lulko@gmail.com
profsheelamisra@gmail.com
Mob.: (+91) 9415088652

19.11.2018

Prof. A.K. Shukla
Head
Department of mathematics, Statistics & Computer Science
College of Basic Sciences & Humanities
G.B. Pant University of Agriculture and technology
Pantnagar – 263145
Udham Singh Nagar Uttarakhand.

Sir,

Kindly refer to your letter no. CBSH/MSCS/405 dated 16.11.2018 regarding Course work of Ph.D. Programme in Statistics/Agricultural Statistics in your university.

The course content of BPS602, BPS611 & BPS 619 seems to be quite appropriate and exhaustive, however introduction of 'R' software may be added somewhere in simulation technique paper BPS602 if possible.

Thanking you.

Yours sincerely,

(Sheela Misra)

Mob. : 09412630572

DEPARTMENT OF STATISTICS

CH. CHARAN SINGH UNIVERSITY, MEERUT-250 004. INDIA

DR. RAKESH GUPTA
Sr. Most Professor

Residence :
AB-1, UNIVERSITY CAMPUS, MEERUT - (U.P.) INDIA
E-mail : smprgccsu@gmail.com

Date 26-11-18

To
Prof. A.K. Shukla
Prof. & Head,
Department of Mathematics, Statistics and Computer Science,
G.B. Pant University of Agriculture and Technology,
Pant Nagar (U.K)

Dear Sir

I have gone through the course contents of Ph.D. in Statistics/Agricultural Statistics sent by you. In my opinion, the course contents are as per UGC guidelines and may be approved without any modifications. However, some typographical errors may be corrected before finalizing the contents. The initiative taken by you is appreciable. I wish all successes in this regard.

With Thanks

Your Sincerely

Rakesh Gupta

Gmail mathematics, statistics and computer science cbsh <mscs.cbsh@gmail.com>

Recommendation regarding Ph.D. Agricultural Statistics/ Statistics Programme

Dr Kamlesh Narayan Singh <kn.Singh@icar.gov.in> Mon, Nov 26, 2018 at 10:27 AM
To: "mathematics, statistics and computer science cbsh" <mscs.cbsh@gmail.com>

Dear Sir,

I am sorry for delay. I have made few suggestions. Otherwise it is a well thought syllabus.

With regards,

K. N. SINGH
Head, Division of Forecasting and Agricultural Systems Modeling,
Indian Agricultural Statistics Research Institute, Library Avenue, PUSA,
New Delhi-110012
Ph. No. 011-25841952 (O)
Mob. 9868183384

From: mathematics, statistics and computer science cbsh <mscs.cbsh@gmail.com>
Sent: 16 November 2018 16:43
To: Dr Kamlesh Narayan Singh
Subject: Recommendation regarding Ph.D. Agricultural Statistics/ Statistics Programme

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Ph.D. Agricultural Statistics / Statistics

Core Courses			**12 Credits**	
1	BPS-602	Simulations Techniques		3(2-0-1)
2	BPS-611	Advanced Statistical Methods		3(2-0-1)
3	BPM-737	Special Functions		3(3-2-0)
4	BPS-619	Survival Analysis and Bayesian Inference		3(3-2-0)
Basic Supporting Courses			**4 Credits**	
1	BHS-652	Research Methodology-I		1
2	BPS-653	Research Methodology-II		3
Optional Courses			**3 Credits**	
Minor Courses Supporting Courses			**10 Credits**	

Course Code: BPS 602
Course Title: Simulation Techniques
Credit Hours : 3 (2-0-1*3)

Course Catalogue

Review of simulation methods; Implementation of simulation methods – for various probability models, and resampling methods: theory and application of the Jackknife and the bootstrap, Randomization tests, analysis using computer software packages. Simulating multivariate distributions, MCMC methods and Gibbs sampling, ARMA, ARIMA and transfer-function models, spectral-domain regression. Simulated data sets to be analyzed using popular computer software packages, Stochastic simulation: Markov Chain, Monte Carlo~~, Gibbs' sampling,~~ Hastings-Metropolis algorithms, critical slowing-down and remedies, auxiliary variables.

Lecture Schedule

Sl. No.	Topics	No. of Lectures/Lab
1.	Some aspects of simulation models, simulation methods for various probability models such as normal, beta, gamma, exponential, Weibull etc.	6/2
2.	Resampling methods- application of Jackknife and bootstrap methods, tests of randomization, use of computer softwares for these methods	7/3
3.	Simulation in multivariate normal distribution, MCMC methods, Gibbs sampling	4/2
4.	ARMA, ARIMA and transfer-function models with theory and applications	3/2
5.	Spectral-domain regression, analysis of simulated data sets through computer softwares (R-software, MATLAB)	4/2
6.	Stochastic simulation- Markov Chain, Monte Carlo and Gibb's sampling	2/1
7.	Hasting-Metropolis algorithms- the principles of the methodology on simple examples with R codes and entries to the recent extensions of the method, Critical slowing-down and remedies. auxiliary variables	6/2
	Total	32/14

Books Recommended

1. Averill ML, Kelton D. 2005. Simulation, Modeling and Analysis. Tata McGraw Hill.
2. Balakrishnan N, Melas VB & Ermakov S. (Ed.). 2000. Advances in Stochastic Simulation
3. Methods. Basel-Birkhauser.
4. Banks J. (Ed.). 1998. Handbook of Simulation: Principles, Methodology, Advances,
5. Applications and Practice. John Wiley.
6. Brately P, Fox BL & Scharge LE. 1987. A Guide to Simulation. Springer.
7. Davison AC & Hinkley DV. 2003. Bootstrap Methods and their Application. Cambridge
8. Univ. Press.
9. Gamerman D, Lopes HF & Lopes HF. 2006. Markov Chain Monte Carlo: Stochastic
10. Simulation for Bayesian Inference. CRC Press.
11. Gardner FM & Baker JD. 1997. Simulation Techniques Set. John Wiley.
12. Gentle JE. 2005. Random Number Generation and Monte Carlo Methods. Springer.
13. Janacek G & Louise S. 1993. Time Series: Forecasting, Simulation, Applications. Ellis
14. Horwood Series in Mathematics and its Applications.
15. Kleijnen J & Groenendaal WV. 1992. Simulation: A Statistical Perspective. John Wiley.
16. Kleijnen J. 1974 (Part I), 1975 (Part II). Statistical Techniques in Simulation. Marcel
17. Dekker.
18. Law A & Kelton D. 2000. Simulation Modeling and Analysis. McGraw Hill.
19. Press WH, Flannery BP, Tenkolsky SA & Vetterling WT. 1986. Numerical Recipes.
20. Cambridge Univ. Press.
21. Ripley BD. 1987. Stochastic Simulation. John Wiley.
22. Ross SM. 1997. Simulation. John Wiley.

Course Code: BPS 611
Course Title: Advanced Statistical Methods
Credit Hours : 3 (2-0-1*3)

Course Catalogue

Introduction to the theory and applications of generalized linear models, fixed effects, random effects and mixed effects models, estimation of variance components from unbalanced data. Unified theory of least squares, MINQUE, MIVQUE, REML, Quasi-likelihoods and generalized estimating equations - logistic regression, over-dispersion, Poisson regression, Ridge regression, robust regression, least absolute deviation regression, M-estimators, Non parametric regression, log-linear models, conditional likelihoods, generalized mixed models and regression diagnostics, Fitting of a generalized linear model, mixed model and variance components estimation.

Lecture Schedule

Sl. No.	Topics	No. of Lectures/Lab
1.	Introduction to the theory and applications of generalized linear models, fixed effects, random effects and mixed effects models, estimation of variance components from unbalanced data	5/2
2.	Unified theory of least squares, MINQUE, MIVQUE, REML, Quasi-likelihoods	6/3
3.	Generalized estimating equations-logistic regression, over-dispersion, Poisson regression, Ridge regression, Robust regression, least absolute deviation regression, M-estimators	7/3
4.	Non-parametric regression, log-linear models, conditional likelihoods	4/2
5.	Conditional likelihoods, generalized mixed models and regression diagnostics	4/2
6.	Fitting of generalized linear models, mixed models and variance components estimation	4/2
	Total	30/14

Books Recommended

1. Chatterjee S, Hadi A & Price B.1999. Regression Analysis by Examples. John Wiley.
2. Draper NR & Smith H. 1998. Applied Regression Analysis. 3rd Ed. John Wiley.
3. Rao CR. 1965. Linear Statistical Inference and its Applications. 2nd Ed. John Wiley.
4. Searle SR, Casella G & McCulloch CE. 1992. Variance Components. John Wiley.
5. Searle SR. 1971. Linear Models. John Wiley.

Course Code: BPS 619
Course Title: Survival Analysis and Bayesian Inference
Credit Hours : 3 (3-0-0)

Course Catalogue

Survival Distributions: Survival functions, hazard rate, hazard function, review of survival distributions: exponential, Weibull, Gamma, Rayleigh, Pareto, Lognormal~ IFR and TFRA, Gompertz and Makeham. Gompertz and logistic distributions, Types of Censoring: Type I, Type II, random and other types of censoring, right and left truncated distributions, series and parallel system of failures, Fitting Parametric Survival Distributions : Special form of survival function cumulative hazard function (CHF) plots, Nelson's method of ungrouped data, construction of the likelihood function for survival data, least squares fitting, fitting a Gompertz distribution to grouped data. Some tests of Goodness of fit: Graphical, Kolmogorov-Smirnov statistics for complete, censored and truncated data,* ~~Chi-Square test and Anderson-Darling A2-statistics, some distribution- free methods (two samples) for ungrouped data, Two samples Kolmogorov-Smirnov test, Wilcoxon test for complete data and modified Wilcoxon test for incomplete data .Gilbert and Gehan's test, mean and variance of Wilcoxon statistics, generalization of Gehan's test, Concomitant Variables:~~ General parametric model for hazard function with observed concomitant variables. Additive and multiplicative models of hazard rate functions. Estimating multiplicative models, selection of concomitant variables, Logistic linear model, Concomitant Variable regarded as random variable, Gompertz distribution, parallel system and Weibull distribution, Fatal short models of failure. Two component series system, Prior and posterior distributions, conjugate priors, non-informative priors, Bayes estimation under Squared Error Loss Function (SELF), Bilinear Loss Function, Linex Loss Function and Intrinsic Loss Functions, Hypotheis testing – Jeffereys' and Lindley's approaches.

*** It may be made part of non-parametric methods. Otherwise it will be to lengthy.**

Lecture Schedule

Sl. No.	Topics	No. of Lectures
1.	Survival functions, hazard rate, hazard function, review of survival distributions: exponential, Weibull, Gamma, Rayleigh, Pareto, Lognormal~ IFR and TFRA, Gompertz and Makeham. Gompertz and logistic distributions	4
2.	Types of Censoring: Type I, Type II, random and other types of censoring, right and left truncated distributions, series and parallel system of failures	3
3.	Fitting Parametric Survival Distributions : Special form of survival function cumulative hazard function (CHF) plots, Nelson's method of ungrouped data, construction of the likelihood function for survival data, least squares fitting, fitting a Gompertz distribution to grouped data	5
4.	Some tests of Goodness of fit: Graphical, Kolmogorov-Smirnov statistics for complete, censored and truncated data, Chi-Square test and Anderson-Darling A2-statistics	4
5.	Some distribution- free methods (two samples) for ungrouped data, Two samples Kolmogorov-Smirnov test, Wilcoxon test for complete data and modified Wilcoxon test for incomplete data, Gilbert and Gehan's test, mean and variance of Wilcoxon statistics, generalization of Gehan's test	4
6.	Concomitant Variables: General parametric model for hazard function with observed concomitant variables. Additive and multiplicative models of hazard rate functions. Estimating multiplicative models, selection of concomitant variables, Logistic linear model, Concomitant Variable regarded as random variable	4
7.	Gompertz distribution, parallel system and Weibull distribution, Fatal short models of failure. Two component series system	2
8.	Prior and posterior distributions, conjugate priors, non-informative priors, Bayes estimation under Squared Error Loss Function (SELF), Bilinear Loss Function, Linex Loss Function and Intrinsic Loss Functions,	4
9.	Hypotheis testing – Jeffereys' and Lindley's approaches.	2

Books Recommended

1. Anderson B. 1990. Methodological Errors in Medical Research. Blackwell.
2. Armitage P & Berry G. 1987. Statistical Methods in Medical Research. Blackwell.
3. Collett D. 2003. Modeling Survival Data in Medical Research. Chapman & Hall.
4. Cox DR & Oakes D. 1984. Analysis of Survival Data. Chapman & Hall.
5. Elandt-Johnson RC & Johnson NL. 1980. Survival Models and Data Analysis. John Wiley.
6. Everitt BS & Dunn G. 1998. Statistical Analysis of Medical Data. Arnold.
7. Hosmer DW Jr. & Lemeshow S. 1999. Applied Survival Analysis: Regression Modeling or Time to Event. John Wiley.
8. Kalbfleisch JD & Prentice. RL 2002. The Statistical Analysis of Failure Time Data. John Wiley.
9. Klein JP & Moeschberger ML. 2003. Survival Analysis: Techniques for Censored and Truncated Data. Springer.
10. Kleinbaum DG & Klein M. 2002. Logistic Regression. Springer.
11. Kleinbaum DG & Klein M. 2005. Survival Analysis. Springer.
12. Lawless JF. 2003. Statistical Models and Methods for Lifetime Data. 2nd Ed. John Wiley.
13. Lee ET. 1980. Statistical Methods for Survival Data Analysis. Lifetime Learning Publ.
14. Bansal, A.K. 2007. Bayesian Parametric Inference, Narosa Publishing House, New Delhi.
15. Sinha, S.K. 1986. Reliability and Life Testing, Wiley Eastern Ltd., New Delhi

Gmail mathematics, statistics and computer science cbsh <mscs.cbsh@gmail.com>

Recommendation regarding Ph.D. Agricultural Statistics/ Statistics Programme

SURESH MALIK <sc_malik@rediffmail.com> Thu, Nov 22, 2018 at 4:18 PM
To: mscs.cbsh@gmail.com

Dear Prof. A.K. Shukla
The contents of the syllabi proposed for Ph.D. programme are critically examined. The nomenclature of the papers is clearly defined and the contents are as per the requirement of the Ph.D. degree.However, there are some misprintings in the syllabi in terms of formating and commas. There is a need to provide a uniform format for all papers. As a whole, the structure of the papers for Ph.D. programme is appreciable and sufficient. Some corrections have been made as per requirement and so find the corrected attachment.
with regards
On Fri, 16 Nov 2018 16:49:58 +0530 "mathematics, statistics and computer science cbsh" wrote
>
Dear Sir,
This is for your kind
information that we are planning to begin Ph.D. Programme in
Agricultural Statistics / Statistics in our Department. The course
contents for the above said programme are attached herewith. You are
requested to kindly read the contents and give your valuable comments
for the same. You can attach a separate sheet for your comments
regarding recommendation of the programme as such or with some
modifications (if any). We are attaching a seprate MS-Word file
containing the course contents for easy modification (if needed)
I hope that you will spare some of your valuable time for this task and send your feedback at the earliest possible.
with regards.
A.K. ShuklaProfessor & Head, Department of Mathematics, Statistics and Computer Science,G.B. Pant University of Agriculture & Technology, Pantnagar (Uttarakhand)Mob. 9412919159email: shuklaak23@yahoo.co.in

Dr.S.C. Malik
Professor
Department of Statistics
M.D.University Rohtak
Haryana (India)-124001
Mob. 09813104668

PhD_-Stats-Syllabus.docx
25K

Course Code: BPS 602
Course Title: Simulation Techniques
Credit Hours : 3 (2-0-1*3)

Course Catalogue

Review of simulation methods; Implementation of simulation methods – for various probability models. Resampling methods: theory and application of the Jackknife and bootstrap. Randomization tests and analysis using computer software packages. Simulating multivariate distributions, MCMC methods and Gibbs sampling, ARMA, ARIMA and transfer-function models and spectral-domain regression. Simulated data sets to be analyzed using popular computer software packages. Stochastic simulation: Markov Chain, Monte Carlo, Gibbs' sampling, Hastings-Metropolis algorithms, critical slowing-down and remedies, auxiliary variables.

Lecture Schedule

Sl. No.	Topics	No. of Lectures/Lab
1.	Some aspects of simulation models and simulation methods for various probability models such as normal, beta, gamma, exponential, Weibull, etc.	6/2
2.	Resampling methods- application of Jackknife and bootstrap methods, tests of randomization and use of computer softwares for these methods	7/3
3.	Simulation in multivariate normal distribution, MCMC methods, Gibbs sampling	4/2
4.	ARMA, ARIMA and transfer-function models with theory and applications	3/2
5.	Spectral-domain regression, analysis of simulated data sets through computer softwares (R-software, MATLAB)	4/2
6.	Stochastic simulation: Markov Chain, Monte Carlo and Gibb's sampling	2/1
7.	Hasting-Metropolis algorithms- the principles of the methodology on simple examples with R codes and entries to the recent extensions of the method, Critical slowing-down and remedies. auxiliary variables	6/2
	Total	32/14

Books Recommended

1. Averill ML, Kelton D. 2005. Simulation, Modeling and Analysis. Tata McGraw Hill.
2. Balakrishnan N, Melas VB & Ermakov S. (Ed.). 2000. Advances in Stochastic Simulation
3. Methods. Basel-Birkhauser.
4. Banks J. (Ed.). 1998. Handbook of Simulation: Principles, Methodology, Advances,
5. Applications and Practice. John Wiley.
6. Brately P, Fox BL & Scharge LE. 1987. A Guide to Simulation. Springer.
7. Davison AC & Hinkley DV. 2003. Bootstrap Methods and their Application. Cambridge
8. Univ. Press.
9. Gamerman D, Lopes HF & Lopes HF. 2006. Markov Chain Monte Carlo: Stochastic
10. Simulation for Bayesian Inference. CRC Press.
11. Gardner FM & Baker JD. 1997. Simulation Techniques Set. John Wiley.
12. Gentle JE. 2005. Random Number Generation and Monte Carlo Methods. Springer.
13. Janacek G & Louise S. 1993. Time Series: Forecasting, Simulation, Applications. Ellis
14. Horwood Series in Mathematics and its Applications.
15. Kleijnen J & Groenendaal WV. 1992. Simulation: A Statistical Perspective. John Wiley.
16. Kleijnen J. 1974 (Part I), 1975 (Part II). Statistical Techniques in Simulation. Marcel
17. Dekker.
18. Law A & Kelton D. 2000. Simulation Modeling and Analysis. McGraw Hill.
19. Press WH, Flannery BP, Tenkolsky SA & Vetterling WT. 1986. Numerical Recipes.
20. Cambridge Univ. Press.
21. Ripley BD. 1987. Stochastic Simulation. John Wiley.
22. Ross SM. 1997. Simulation. John Wiley.

Course Code: BPS 611
Course Title: Advanced Statistical Methods
Credit Hours: 3 (2-0-1*3)

Course Catalogue

Introduction to the theory and applications of generalized linear models, fixed effects, random effects and mixed effects models. Estimation of variance components from unbalanced data. Unified theory of least squares, MINQUE, MIVQUE, REML, Quasi-likelihoods and generalized estimating equations -logistic regression, over-dispersion, Poisson regression, Ridge regression, robust regression, least absolute deviation regression, M-estimatiors, Non parametric regression, log-linear models, conditional likelihoods, generalized mixed models and regression diagnostics, Fitting of a generalized linear model, mixed model and variance components estimation.

Lecture Schedule

Sl. No.	Topics	No. of Lectures/Lab
1.	Introduction to the theory and applications of generalized linear models, fixed effects, random effects, mixed effects models and estimation of variance components from unbalanced data	5/2
2.	Unified theory of least squares, MINQUE, MIVQUE, REML and Quasi-likelihoods	6/3
3.	Generalized estimating equations-logistic regression, over-dispersion, Poisson regression, Ridge regression, Robust regression, least absolute deviation regression and M-estimators	7/3
4.	Non-parametric regression, log-linear models and conditional likelihoods	4/2
5.	Conditional likelihoods, generalized mixed models and regression diagnostics	4/2
6.	Fitting of generalized linear models, mixed models and variance components estimation	4/2
	Total	30/14

Books Recommended

1. Chatterjee S, Hadi A & Price B.1999. Regression Analysis by Examples. John Wiley.
2. Draper NR & Smith H. 1998. Applied Regression Analysis. 3rd Ed. John Wiley.
3. Rao CR. 1965. Linear Statistical Inference and its Applications. 2nd Ed. John Wiley.
4. Searle SR, Casella G & McCulloch CE. 1992. Variance Components. John Wiley.
5. Searle SR. 1971. Linear Models. John Wiley.

Course Code: BPS 619
Course Title: Survival Analysis and Bayesian Inference
Credit Hours : 3 (3-0-0)

Course Catalogue

Survival Distributions: Survival functions, hazard rate, hazard function, review of survival distributions: exponential, Weibull, Gamma, Rayleigh, Pareto, Lognormal~ IFR and TFRA, Gompertz and Makeham. Gompertz and logistic distributions. Types of Censoring: Type I, Type II, random and other types of censoring, right and left truncated distributions, series and parallel system of failures, Fitting Parametric Survival Distributions : Special form of survival function cumulative hazard function (CHF) plots, Nelson's method of ungrouped data, construction of the likelihood function for survival data, least squares fitting, fitting a Gompertz distribution to grouped data. Some tests of Goodness of fit: Graphical, Kolmogorov-Smirnov statistics for complete, censored and truncated data, Chi-Square test and Anderson-Darling A2-statistics, some distribution-free methods (two samples) for ungrouped data, Two samples Kolmogorov-Smirnov test, Wilcoxon test for complete data and modified Wilcoxon test for incomplete data .Gilbert and Gehan's test, mean and variance of Wilcoxon statistics, generalization of Gehan's test, Concomitant Variables: General parametric model for hazard function with observed concomitant variables. Additive and multiplicative models of hazard rate functions. Estimating multiplicative models, selection of concomitant variables, Logistic linear model, Concomitant Variable regarded as random variable, Gompertz distribution, parallel system and Weibull distribution, Fatal short models of failure. Two component series system, prior and posterior distributions, conjugate priors, non-informative priors, Bayes estimation under Squared Error Loss Function (SELF), Bilinear Loss Function, Linex Loss Function and Intrinsic Loss Functions, Hypotheis testing – Jeffereys' and Lindley's approaches.

Lecture Schedule

Sl. No.	Topics	No. of Lectures
1.	Survival functions, hazard rate, hazard function, review of survival distributions: exponential, Weibull, Gamma, Rayleigh, Pareto, Lognormal~ IFR and TFRA, Gompertz and Makeham. Gompertz and logistic distributions	4
2.	Types of Censoring: Type I, Type II, random and other types of censoring, right and left truncated distributions, series and parallel system of failures	3
3.	Fitting Parametric Survival Distributions : Special form of survival function cumulative hazard function (CHF) plots, Nelson's method of ungrouped data, construction of the likelihood function for survival data, least squares fitting, fitting a Gompertz distribution to grouped data	5
4.	Some tests of Goodness of fit: Graphical, Kolmogorov-Smirnov statistics for complete, censored and truncated data, Chi-Square test and Anderson-Darling A2-statistics	4
5.	Some distribution- free methods (two samples) for ungrouped data, Two samples Kolmogorov-Smirnov test, Wilcoxon test for complete data and modified Wilcoxon test for incomplete data, Gilbert and Gehan's test, mean and variance of Wilcoxon statistics, generalization of Gehan's test	4
6.	Concomitant Variables: General parametric model for hazard function with observed concomitant variables. Additive and multiplicative models of hazard rate functions. Estimating multiplicative models, selection of concomitant variables, Logistic linear model, Concomitant Variable regarded as random variable	4
7.	Gompertz distribution, parallel system and Weibull distribution, Fatal short models of failure. Two component series system	2
8.	Prior and posterior distributions, conjugate priors, non-informative priors, Bayes estimation under Squared Error Loss Function (SELF), Bilinear Loss Function, Linex Loss Function and Intrinsic Loss Functions,	4
9.	Hypotheis testing – Jeffereys' and Lindley's approaches.	2

Books Recommended

1. Anderson B. 1990. Methodological Errors in Medical Research. Blackwell.
2. Armitage P & Berry G. 1987. Statistical Methods in Medical Research. Blackwell.
3. Collett D. 2003. Modeling Survival Data in Medical Research. Chapman & Hall.
4. Cox DR & Oakes D. 1984. Analysis of Survival Data. Chapman & Hall.
5. Elandt-Johnson RC & Johnson NL. 1980. Survival Models and Data Analysis. John Wiley.
6. Everitt BS & Dunn G. 1998. Statistical Analysis of Medical Data. Arnold.
7. Hosmer DW Jr. & Lemeshow S. 1999. Applied Survival Analysis: Regression Modeling or Time to Event. John Wiley.
8. Kalbfleisch JD & Prentice. RL 2002. The Statistical Analysis of Failure Time Data. John Wiley.
9. Klein JP & Moeschberger ML. 2003. Survival Analysis: Techniques for Censored and Truncated Data. Springer.
10. Kleinbaum DG & Klein M. 2002. Logistic Regression. Springer.
11. Kleinbaum DG & Klein M. 2005. Survival Analysis. Springer.
12. Lawless JF. 2003. Statistical Models and Methods for Lifetime Data. 2nd Ed. John Wiley.
13. Lee ET. 1980. Statistical Methods for Survival Data Analysis. Lifetime Learning Publ.
14. Bansal, A.K. 2007. Bayesian Parametric Inference, Narosa Publishing House, New Delhi.
15. Sinha, S.K. 1986. Reliability and Life Testing, Wiley Eastern Ltd., New Delhi

Item No. I/2019:5 **Start of two new courses viz. TCE-614 Dynamics of Structures [3(3-1-0)] & TCE-615 [3(3-1-0)] Seismic Analysis of Structures for M.Tech. (Structural Engineering) degree programme**

The P.G. Faculty is requested to consider start of two new courses viz., TCE-614 and TCE-615 for M.Tech. (Structural Engineering) degree programme as received from Head, Civil Engineering.

Office of the Dean, P.G.S. Receipt No. 2991 Date 6-3-19 Patiala

Department of Civil Engineering
College of Technology

CTE/CED/451
dated 06/03/19

Incharge,
Course Curriculum Committee
College of Technology

Sub: Regarding the introduction of two new courses in M.Tech (Structural Engineering) as optional courses

The following courses are proposed to add as new optional courses in the course curriculum of M.Tech (Structural Engineering). These courses are related to Earthquake Engineering and no such type of course is available in the list of optional courses.

Sl No.	Course No. and Name	Name of Proposer
1.	TCE-614 , Dynamics of Structures	Sunil Kumar and Dr. Vaneeta Devi
2.	TCE-615, Seismic Analysis of Structures	Dr. Vaneeta Devi and Sunil Kumar

The faculty members of the department are also in the opinion to add the above courses in the course curriculum of M.Tech (Structural Engineering) as optional. The departmental meeting held on 02.03.2019 (minutes enclosed) and decided the need of exposure of earthquake engineering to PG students.

Therefore, the proposal of the new courses is enclosed herewith for recommendation of the committee and further necessary action please

F.M.P.E. Receipt No. 1754 Date 6-3-19

R.i.o
may kindly be routed through Dean of the College of Technology

(Vaneeta Devi)
Asstt. Professor,CED

DEAN, P.G.S. 16/3/19

(Sunil Kumar)
Asstt. Professor,CED

F.M.P.E. Despatch No. 3048 Date 6/3/19

Encl:

1.copy of minutes of departmental meeting
2. Course proposal as per standard format

Recommended & forwarded
6/3/19
Head
Civil Engineering Deptt.

Dean
College of Post Graduate Studies

may like to see the proposal of faculty from civil Engg regarding introducing two new courses, as optional courses for M.Tech Structural Engg. The detail of the courses alongwith proceeding of the departmental meeting is enclosed herewith. It is requested to kindly consider the proposal of the department.
Submitted for consideration please.

16/3/19
(T.P. Singh)
Chairman (Core curriculum committee)

Head CED / Dean Technology

CTE/CED/512
dated 27/3/19

(2)

May kindly refer the proposal of two new courses (related to Earthquake Engineering) to be introduce in the curriculum of M.Tech (Structures) as Optional course.

As per the comment of Dean PGS, this proposal should be sent through Dean, CT.

It is further submitted for your recommendation & onward transmission to the Dean PGS.

Recommended forwarded

Head
Civil Engineering Dept.

(SUNIL KUMAR)
Ass. Professor
CED

Dean P.G.S

Dean
College of Technology
28/3/19

CTE/171/
dt. 28.3.19

Dean C.T. Office
Receipt No. 2037
Dated 27-3-19

Office of the Dean, P.G.S.
2991/CR16
29.3.19
Pantnagar

SA-II
Faculty Secretary
16/4/19.

DEAN, P.G.S.
29/03/19

PROPOSAL FOR A NEW COURSE

1.	College:	Technology
2.	Department:	Civil Engineering
3.	Title of the Course & Course No.	**Dynamics of Structures TCE-614**
4.	Catalogue Description:	Attached
5.	To be offered:	Once in a year
6.	Credits:	3(3-1.-0)
7.	Is this new course	Yes
8.	Curricular Purpose of the course:	**Optional Course** for M.Tech. (Structural Engineering) Programme
9.	General educational purpose a). General Education b). Departmental specialization c). Student Research d). Outgrowth of instructors research programme e). Why could the educational purpose of the course not be achieved by modification of a course now being given? Please specify	 Yes Yes Yes No No such course is available
10.	Relation to other courses a). Pre-requisite b). Is the course a pre-requisite of any course. c). An introductory survey of knowledge represented by the department d). An introductory survey of a special area of knowledge e). A further development of course area of knowledge f). An introductory survey of a special area of knowledge represented by some other department g). A summarizing or integrated course h). In your judgment does this course overlap to considerable extent with any other course	 No No No No Yes No No No
11.	What are the urgent reasons why this course should be offered at the present time:	This course is being initiated as optional course for M.Tech. (Structural Engineering)
12.	Is this course intended to replace any existing course:	No
13.	Would the introduction of this course well require staff over and above the sanctioned staff of the department?	No
14.	What is the exact place of this course in the development of the educational programme of your department	This is optional course for M.Tech. (Structural Engineering) programme in Civil Engineering Deptt.
15.	Syllabus	Lecture wise syllabus attached
16.	Basic text for the proposed course	Attached
17.	List of supplementary readings	Attached
18.	Do classroom, Laboratory and other facilities	Yes

	exist	
19.	Would the introduction of this course required additional staff:	No
20.	Prepared by	Sunil Kumar and Dr. Vaneeta Devi

Lecture wise course distribution

Course title: "Dynamics of Structures "
Course No.: TCE-614
Course credits: 3(3-1-0)

S. No.	Contents	Contact Hours
1.	Vibrations and the nature of time dependent phenomena, inertia, dynamic equilibrium and mathematical models of physical systems; Energy storing and dissipation mechanisms.	3
2.	Dynamics of Single Degree of Freedom Systems, undamped and damped, free and forced vibrations; Steady-state and transient response, impulse response.	10
3.	Harmonic response and applications to vibration isolation; theory of seismic pickups: Seismometers, accelerometers.	4
4.	Convolution integral and solution of equation of motion; Numerical methods for solution of linear and non-linear equations of motion; response/shock spectra; Fourier transforms and analysis in frequency domain.	6
5.	Dynamics of Multi-Degree of Freedom Systems, Lagrange's equations; equations of motion for MDOF systems; Algebraic eigenvalue problem and free vibration analysis; Undamped and damped normal modes; Mode superposition method for dynamic analysis of linear systems; Mode-truncation and correction for the missing mass.	12
6	Dynamics of Continuous Systems, Hamilton's principle; Axial and transverse vibrations of beams, torsional vibrations of shafts; Normal modes; Free and forced vibration analysis by mode superposition; Vibrations of elastic half-space.	4
7.	Approximate Methods for Vibration Analysis, Rayleigh quotient, rayleigh-ritz method.	3
	Total	**42**

List of Books

S. No.	Name of Authors / Books / Publishers	Year of Publication/Reprint
1.	Warburton, G. B., "The Dynamic Behaviour of Structures", 2nd edition, Pergamon Press.	1976

2.	Clough, R. W. and Penzien., J., "Dynamics of Structures", 2nd edition, Mc-Graw Hill Book Company.	1993
3.	Humar, J. L., "Dynamics of Structures", 2nd edition, Taylor & Francis.	2002
4.	Chopra, A. K., "Dynamics of Structures", 3rd edition, PHI Learning.	2006
5.	Craig, R. R., Jr. and Kurdila, A., "Fundamentals of Structural Dynamics", 2nd edition, John Wiley & Sons.	2006
6.	Villaverde, R., "Fundamental Concepts of Earthquake Engineering", Taylor & Francis.	2008

Marks Distribution

I Pre final Exam	25 Marks
II Pre final Exam	25 Marks
Assigment/Lab	10 Marks
Final Exam	40 Marks
Total	100 Marks

PROPOSAL FOR A NEW COURSE

1.	College:	Technology
2.	Department:	Civil Engineering
3.	Title of the Course & Course No.	**Seismic Analysis of Structures (TCE-615)**
4.	Catalogue Description:	Attached
5.	To be offered:	Once in a year
6.	Credits:	3(3-1-0)
7.	Is this new course	Yes
8.	Curricular Purpose of the course:	**Optional Course** for M.Tech. (Structural Engineering) Programme
9.	General educational purpose a). General Education b). Departmental specialization c). Student Research d). Outgrowth of instructors research programme e). Why could the educational purpose of the course not be achieved by modification of a course now being given? Please specify	 Yes Yes Yes No No such course is available
10.	Relation to other courses a). Pre-requisite b). Is the course a pre-requisite of any course. c). An introductory survey of knowledge represented by the department d). An introductory survey of a special area of knowledge e). A further development of course area of knowledge f). An introductory survey of a special area of knowledge represented by some other department g). A summarizing or integrated course h). In your judgment does this course overlap to considerable extent with any other course	 No No No No Yes No No No
11.	What are the urgent reasons why this course should be offered at the present time:	This course is being initiated as Optional for M.Tech. (Structural Engineering)
12.	Is this course intended to replace any existing course:	No
13.	Would the introduction of this course well require staff over and above the sanctioned staff of the department?	No
14.	What is the exact place of this course in the development of the educational programme of your department	This is a optional course for M.Tech. (Structural Engineering) programme in Civil Engineering Deptt.
15.	Syllabus	Lecture wise syllabus attached
16.	Basic text for the proposed course	Attached
17.	List of supplementary readings	Attached
18.	Do classroom, Laboratory and other facilities	Yes

	exist	
19.	Would the introduction of this course required additional staff:	No
20.	Prepared by	Dr. Vaneeta Devi and Mr. Sunil Kumar

Lecture wise course distribution

Course title: "Seismic Analysis of Structures"
Course No.: TCE-615
Course credits: 3(3-1-0)

S. No.	Contents	Contact Hours
1.	Causes and effects of Earthquakes: Definitions of important terms; Causes of earthquakes and their classifications, Seismic waves, Plate tectonics, Characteristics of earthquakes, accelerograms, attenuation, Travel time curves, Earthquake magnitude scales, energy, frequency magnitude relations and return period.	10
2.	Concepts of seismic design- Seismic performance of structures and structural components during earthquakes; Ground motion parameters; Response spectrum, design spectrum	10
3.	Essentials of structural systems for seismic resistance- Structural systems–frames, walls, dual systems –Response in elevation– plan-Influence of building configuration – structural classification. Behaviour of Masonry Structures During Past Earthquakes: Common modes of failure, effect of unit shapes and mortar type, effect of roof and floor systems; Common deficiencies.	6
4.	Seismic Design Philosophy: Concept of strength, overstrength and ductility, Concept of equal displacement and equal energy principles, capacity design; seismic design consideration in buildings with irregularities	6
5.	Seismic Analysis of Buildings: Equivalent static analysis, response spectrum analysis, mode superposition method; Time history analysis;	10
	Total	42

List of Books

S. No.	Name of Authors / Books / Publishers	Year of Publication/Reprint
1	Bullen, K.E. and Bolt, B.A., "An introduction to the Theory of Seismology", Fourth Edition, Cambridge University Press, Cambridge.	1985
2	Kramer, S.L., "Geotechnical Earthquake Engineering", Second Indian reprint, Pearson Education.	2004
3	Drysdale, R. G., Hamid, A. H. and Baker, L. R., "Masonry Structure: Behaviour and Design", Prentice Hall, Englewood Cliffs.	1994

4	Amrhein, J. E., "Reinforced Masonry Engineering Handbook," Masonry Institute of America, CRC Press.	1998
5	Paulay, T. and Priestley, M. J. N., "Seismic Design of Reinforced Concrete and masonry Buildings", John Wiley & Sons.	1995
6	Donald Anderson and Svetlana Brzev, "Seismic Design Guide for Masonry Buildings," Canadian Concrete Masonry Producers Association.	2009
7	Drysdale, R.G. Hamid, A. H. and Baker, L.R "Masonry Structure: Behaviour and Design", Prentice Hall, Englewood Cliffs.	1994
8	Schneider, R.R. and Dickey, W.L. "Reinforced Masonry Design", 3rd Ed., Prentice Hall.	1994
9	Edmund Booth, "Concrete Structure in earthquake regions – Design & Analysis" Longman Scientific & Technical.	1994
10	Penelis, George G., and Kappos, Andreas J., "Earthquake Resistant Concrete Structures", E & F. N., Spon.	1997
11	"Building Seismic Safety Council", Federal Emergency Management Agency, Washington, D.C, FEMA 356, 2000, FEMA 440 / ATC 55, 2005, FEMA 310.	1998
12	Allan Willians, "Seismic Design of Building & Bridges", Oxford University Press.	2003
13	Robert E. Englekirk "Seismic Design of Reinforced and Precast Concrete Buildings", John Wiley & Sons.	2003

Marks Distribution

I Pre final Exam	25 Marks
II Pre final Exam	25 Marks
Lab/ Assignment	10 Marks
Final Exam	40 Marks
Total	100 Marks

Minutes of the meeting of faculty members of Civil Engineering department held on 02.03.2019 at 12:00 Noon. in the Seminar Room of the Department of Civil Engineering:

No. CTE/CED/445
Date: 05/03/19

The following faculty members were present:

1. Dr. S.S.Gupta
2. Dr. P.S.Mahar
3. Dr. Ajit Kumar
4. Dr. Sanjeev Suman
5. Dr. Sandeep Gupta
6. Dr. V. K. Verma
7. Dr. Subir Kumar Sharma
8. Sri. Sunil Kumar
9. Dr. B. K. Pandey
10. Ms. Sonia Sharma

At the outset the head of department welcomed the faculty members and informed that the fresh three slots of dates for NBA expert team visit were finalized in the meeting held in the chairmanship of Dean CT, and the first slot is April 26, 27 and 28, 2019. Therefore regarding the preparedness of the NBA visit to the department, following was resolved:

1. All faculty members will distribute the Course Outcomes (COs) to the students of the courses they are teaching and also will brief the NBA accreditation process to make the students aware in this regard.
2. 10 files of the evident documents/indicative exhibits/context to be observed/ assessed are to be prepared for each 10 Criterion of the SAR. It was decided that the Secretary will email the document "*Evaluation Guidelines with indicative exhibits/context to be Observed/Assessed - SAR Tier – I (UG Engineering)*" and "*SAR of the Department of Civil Engineering*" to all faculty members of the department. The work of preparation of above mentioned files for each criterion will be taken care by the faculty as nominated below as discussed in the meeting:

Sl No.	Criterion No and Name	Faculty Names
1.	Criterion 1: Vision, Mission and Program Educational Objectives	Dr. B. Pandey and Dr. Astha Verma
2.	Criterion 2: Program Curriculum and Teaching–Learning Processes (100)	Dr. Sandeep Gupta andDr. S. K. Sharma
3.	Criterion 3: Course Outcomes and Program Outcomes (175)	Dr. S. S. Gupta, Dr. Sanjeev Suman and Dr. Sandeep Gupta
4.	Criterion 4: Students' Performance (100)	Dr. V. K. Verma and Ms.

		Sonia Sharma
5.	Criterion 5: Faculty Information and Contributions (200)	Mr. Sunil Kumar and Dr. Vaneeta Devi
6.	Criterion 6: Facilities and Technical Support (80)	Dr. Ajit Kumar and Ms. Swati Rajput
7.	Criterion 7: Continuous Improvement (75)	Dr. S. S. Gupta, Dr. P. S. Mahar and Dr. Sanjeev Suman
8.	Criterion 8: First Year Academics (50)	Dr. V. K. Verma and Dr. Astha Verma
9.	Criterion 9: Student Support Systems (50)	Dr. P. S. Mahar and Ms. Sonia Sharma
10.	Criterion 10: Governance, Institutional Support and Financial Resources (120)	Dr. Jyothi Prasad and Dr. H. J. S. Prasad

It was also resolved that the faculty will ensure the preparation of files before the 12th march 2019.

3. Mr. Sunil Kumar and Dr. Vaneeta Devi proposed to add two new elective courses **TCE-614 Dynamics of Structures** and **TCE-615 Seismic Analysis of Structures** in the course curriculum of M.Tech Structural Engineering and it was decided with unanimity, that as such types of courses are not there in the course curriculum of M.Tech Structural Engineering, hence these courses may be adopted and may be send to the Course Curriculum Committee of the College of Technology for further necessary action.
4. Head of department informed, that training for the Civil engineering students of Shri Guru Gobind Singh ji Institute of Engineering and Technology, Nanded (Maharashtra State) is to be organized and it was decided that the Mr. Sunil Kumar will initiate the proposal in this regard.
5. Dr. S. K. Sharma was unanimously elected as Secretary, Department Meetings, his name was nominated by Dr. S. S. Gupta and seconded by Dr. V. K. Verma.

Dr. Sanjeev Suman
Secretary Department Meetings

Item No. I/2019:6 Admission in M.Sc. Agriculture (Biotechnology) through University Entrance Examination

The P.G. Faculty is requested to consider the proposal received from Head, MBGE for admission on 10 seats in M.Sc. Agriculture (Biotechnology) degree programme through University Entrance Examination.

DEPARTMENT OF MOLECULAR BIOLOGY & GENETIC ENGINEERING
COLLEGE OF BASIC SCIENCES & HUMANITIES
G.B. PANT UNIVERSITY OF AGRICULTURE & TECHNOLOGY, PANTNAGAR- 263145

No. CBSH/MBGE/ 1251 Dated: 27.11.2019

Dean, P.G.S.

Through: Dean, CBSH

This is with reference to your letter no. PGS/SA/3619 dated 15.11.2019 regarding agenda item(s) details to be deliberated upon in the forthcoming P.G. Faculty meeting. In this regard, kindy find enclosed herewith Agenda Item for PG Faculty meeting for your perusal and necessary action, please.

(A.K. Gaur)
Professor & Head, MBGE
Head, MBGE

Encl: as above.

P.A. to D.A.

DEAN, P.G.S.

Dean, CBSH
23/11/19

MOLECULAR BIOLOGY & GENETIC ENGINEERING (MBGE)
COLLEGE OF BASIC SCIENCE & HUMANITIES (CBSH)

Agenda Item for PG Faculty:

Proposal for Admission in M.Sc. Agriculture (Biotechnology) through University Entrance and in addition eligibility qualification in existing qualification in Ph.D. programme.

Biotechnology is a multi-disciplinary area on the educational scene and programmes have been developed to meet the growing demand for trained human resources for meaningful commercial activity for betterment of society. The Government of India has allotted high priority for the development of Biotechnology and its benefit in agriculture and other related disciplines.

As a nodal department for Pantnagar Biotechnology Program, M.Sc. Agriculture (Biotechnology)/ M.V.Sc (Animal Biotechnology) admissions are made through the entrance examination conducted by JNU, CEEB, New Delhi. Due to continuous decrease in the number of students in various Biotechnology Programs at National level during last 2-3 years. DBT, New Delhi has also allowed to fill vacant seats through University entrance without compromising the quality of students. Therefore, it has been decided in the departmental faculty meetings that the admission for at least 10 seats beside M.Sc. Agriculture (Biotechnology)/ M.V.Sc (Animal Biotechnology) should be filled through GBPUAT University Entrance Exam.

The details of the existing and new proposed program of M.Sc. Agriculture (Biotechnology)/ M.V.Sc (Animal Biotechnology) are given below.

Name of Major	Number of seats		Eligibility Qualification	
	Existing	Proposed	Existing	Proposed
MASTERS PROGRAMME				
*M.Sc. Agriculture (Biotechnology)/ M.V.Sc. (Animal Biotechnology) **(Existing)**	25 (20/5)	No change	Bachelor's Degree in Science / Agriculture/ Horticulture/ Forestry/ Veterinary Science/ Fisheries Science/ Biotechnology/ Agriculture Biotechnology	No change
** M.Sc. Agriculture (Biotechnology) **(Proposed)**	-	10	Bachelor's Degree in Science / Agriculture/ Horticulture/ Forestry/ Veterinary Science/ Fisheries Science/ Biotechnology/ Agriculture Biotechnology	No change
PH.D. PROGRAMME				
	UA Seats / OS Seats	UA Seats / OS Seats		
Molecular Biology & Biotechnology	04 / 01	No change / No change	M.Sc. Ag./ M.Sc. / M.V.Sc. in Biochemistry / Microbiology / Biotechnology/ Molecular Biology & Biotechnology/ Animal Biotechnology/ Genetic Engineering / M. Tech. Biotechnology	Addition 'Genetics & Plant Breeding' in existing qualification.

* *Admissions are made through JNU CEEB, New Delhi.*

** *Admissions proposed through entrance exam of G.B. Pant University of Agriculture & Technology.*

NOTE: Two letters have been received in above regard from DBT, New Delhi.

भारत सरकार
विज्ञान और प्रौद्योगिकी मंत्रालय
बायोटेक्नोलॉजी विभाग
ब्लाक–2,7 वां तल, सी० जी० ओ० कम्पलेक्स
लोदी रोड, नई दिल्ली–110003

GOVERNMENT OF INDIA
MINISTRY OF SCIENCE & TECHNOLOGY
DEPARTMENT OF BIOTECHNOLOGY
Block-2, 7th Floor C.G.O. Complex
Lodi Road, New Delhi-110003

Dr. Meenakshi Munshi
Adviser
Tel: 011-24361035
Email: meenakshi29.dbt@nic.in

D.O. No. BT/HRD/01/02/2006/vol-II

Dated: 15.11.2019

Dear Prof. Gaur

This is with reference to your "M.Sc. Agriculture Biotechnology" teaching program supported by Department of Biotechnology. As you may be aware that recently Department of Biotechnology has conducted meeting of Thematic working Group on DBT-HRD and Group has recommended fresh approval of Programmes through re-selection of Universities/ Institutes, running DBT supported PG Teaching Programme Based on deliberations, it was felt that this is an urgent need for revisiting all the existing PG Teaching Programmes which have been running for the last few decades hence it becomes imperative to look at all the programme a fresh Accordingly, Department has decided to cease the funding support beyond 31st March 2020 to PG Teaching Program However Department will continue the support to ongoing batches of students already admitted under DBT support during 2019-20 academic session

I am, therefore, requesting you to take appropriate action and not to admit new students in "M.Sc./M.Tech./M.VSc. Biotechnology teaching program under DBT support from 2020-21 academic session. DBT will bear no financial liability for students admitted after current academic session i.e., 2019-20. However, you all are requested to submit a fresh proposal in case you all still interested in running the PG teaching Programme in your organization. The advertisement for seeking fresh application will be soon available on DBT website

This is your kind information and necessary action.

With kind regards.

Yours sincerely,

(Meenakshi Munshi)

Head, MBGB 25/11/19

Prof. Anil Kumar Gaur
Head & Coordinator
Department of Biochemistry & Molecular Biology and Genetic Engineering
College of Basic Science & Humanities, G.B. Pant University of Agriculture & Technology, Pantnagar – 263 145

भारत सरकार
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D.O. No. BT/HRD/01/02/2006/vol-II

Dated: 15.11.2019

Dear Prof. Gaur

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This is your kind information and necessary action.

With kind regards.

Yours sincerely,

(Meenakshi Munshi)

Head, MBGE

Prof. Anil Kumar Gaur
Head & Coordinator
Department of Biochemistry & Molecular Biology and Genetic Engineering
College of Basic Science & Humanities
G.B. Pant University of Agriculture & Technology
Pantnagar - 263 145

Item No. I/2019:7 Admission Policy 2020-21 for MBA programme

The P.G. Faculty is requested to consider Admission Policy for MBA programme 2020-21 received from Dean, CABM.

1. Eligibility Qualifications

M. B. A.

Bachelor's degree in any branch of Engineering/Technology from NTA approved Institutions/UGC approved Universities.

M.B.A. (Agribusiness)

Bachelor's and/or Master's degree in Agriculture, Agricultural Chemicals, Agricultural Engineering, Dairy Science/ Technology, Fisheries, Food Science/ Technology, Forestry, Home-Science, Horticulture, Veterinary Science or B.Tech (Biotechnology).

2. Selection Procedure

The candidates will have to appear either in Common Admission Test (CAT) conducted by IIM or Common Management Admission Test (CMAT) conducted by NTA. CABM will use CAT/CMAT score for short listing the candidates for its two year full time MBA programs. These short listed candidates will have to appear for further screening on the basis of Group Discussion and Personal Interview at CABM, Pantnagar on specified date(s). The candidates willing to seek admission in MBA (Agribusiness) or MBA program will have to apply to CABM, Pantnagar separately.

3. Number of Seats

The regular intake capacity for the MBA (Agribusiness) is 32 and MBA program is 8 i.e. a total of 40 seats out of which 50% seats are for the candidates from States other than Uttarakhand and 50% seats are for candidates of Uttarakhand State in which seats for OBC, SC and ST are reserved as per the reservation policy of the Uttarakhand Government, implemented by GBPUAT, Pantnagar.

For the Other-State category, not more than 2 seats will be given to any single state. However, this condition may be waived off by Admission Committee if qualified candidates are not available in a particular state.

In case, the seats in MBA (Agribusiness) program remain vacant, they will be transferred to MBA program and vice-versa. In case, the seats of Other-States remain vacant, they will be filled from the candidates of Uttarakhand State and vice-versa.

4. Sponsored Candidates: Sponsored students under the following categories will be admitted over and above the present sanctioned strength of 40 seats on the following basis:

a) **Foreign students:** Two seats in each Masters program i.e. a total of four seats shall be available to foreign nationals (candidates) provided that they fulfill the eligibility qualifications on payment of fee as per University rule.

b) **Candidates sponsored by GBPUAT, Pantnagar:** Two seats in each Masters program i.e. a total of four seats shall be available for candidates sponsored by GBPUAT, Pantnagar and Development departments of State government.

c) **Uttarakhand Government Officers:** Two seats in each Masters program i.e. a total of four seats will be reserved for Uttarakhand Government officers in addition to the regular seats. The Uttarakhand Government officers will neither be required to take CAT/CMAT examination nor will be required to appear in Group Discussion and Personal Interview. The program fee for these government officers will be double of the program fee meant for the regular candidates.

Eligibility Qualifications for sponsored candidates: The sponsored candidates besides meeting the eligibility qualifications should have secured an OGPA of not less than 6.000/10.000 or 3.000/5.000 or 55% marks in aggregate in Bachelor's degree. In case of all categories of sponsored candidates, if the seats of MBA (Agribusiness) program remain vacant, the same will be transferred to MBA program and vice-versa.

5. Reservation

Seats for OBC, SC and ST candidates are reserved as per the reservation policy of the State Government of Uttarakhand, implemented by the University. Candidates claiming reservation shall be required to submit appropriate certificate as per Annexure-I, at the time of Group Discussion/ Personal Interview, failing which they shall be treated in general category only. Any subsequent claim for reservation shall not be entertained. For getting reservation under OBC category the certificate should be issued after March 31, 2020.

6. Candidates from States other than Uttarakhand

A candidate falling in either of the following categories will be considered in 'Other State' category:

a. A candidate who is a permanent resident outside Uttarakhand since birth, or
b. A candidate whose permanent address is outside the Uttarakhand State, unless he submits domicile certificate of Uttarakhand at the time of Group Discussion/ Personal Interview, or
c. A candidate who has completed his qualifying examination from outside the Uttarakhand State unless he submits domicile certificate from Uttarakhand at the time of Group Discussion/ Personal Interview.

Note: The candidates who have completed their qualifying degree from G. B. Pant University of Agriculture and Technology will be treated as domicile of Uttarakhand for admission to MBA (Agribusiness)/MBA program as per G. O. No. 350/XIII – I/ 30 (2)/ 2001 dated 06/07/08 and 218/ Krishi evam Jalagam/ 2004 dated 28.02.2004, and as per resolution adopted by the Academic Council in its 338th meeting.

7. Duration

The normal duration of MBA (Agribusiness) and MBA program is two academic years or four semesters. The minimum and maximum duration of the program is four and six semesters respectively.

8. Sale and Submission of Application Forms

The application form of CABM for admission shall be made available to the candidates on payment of fee of Rs. 1500/- by cash or by a Demand Draft in favour of 'Dean, College of Agribusiness Management' payable at Punjab National Bank, Pantnagar branch (Code 4446). The Admission forms will be available from January 1, 2020. This filled-in form must be submitted latest by February 28, 2020 in person or by post at the office of Dean, CABM.

The candidates can also download the form from the website www.cabm.ac.in and submit it in person or by post along with the fee of Rs. 1500/- by a Demand Draft in favour of 'Dean, College of Agribusiness Management' payable at Punjab National Bank. Pantnagar branch (Code 4446).

The form can also be obtained/downloaded and submitted up to March 31, 2020 with an additional late fee of Rs. 1500/-, if submitted after February 28, 2020.

9. Medical Examination

All candidates called for Group discussion/Personal Interview will be required to produce medical and physical fitness certificate from the Chief Medical Officer or equivalent.

10. Verification of Documents

At the time of Group Discussion, candidates will be required to produce all Certificates/mark sheets right from Class X till their eligibility qualifications along with a character certificate from the Head of the Institution (Registrar/ Dean/ Principal/ Director of the University/College/ Institute) last attended.

11. Mode of Admission

The candidates will be selected for admission on the basis of their performance in CAT/CMAT, Group discussion and Personal Interview. The weightage f these three components will be:

Entrance test Score (CAT/ CMAT)	60%
Group discussion	30%
Personal Interview	10%

The equivalence between CAT and CMAT score will be as recommended by the Committee constituted by the Academic Council in its 379th meeting and approved by Academic Council in 385th meeting.
Qualifying marks in entrance test, Group discussion and personal interview will be decided by the Admission Committee.

12. Fee Structure and Payment Schedule

The candidates are required to pay the fee of the MBA programme within the limits specified in the following paragraph.

I) **Admission/Counseling Fee:** All candidates called for Group discussion and Personal Interview (whether finally admitted or not) will be required to deposit a non-refundable fee of Rs. 3,000 as Counseling fee. This is a necessary pre-requisite for attending the Group Discussion and Interview.

II) **Program and University Fee**: All those candidates admitted to MBA (Agribusiness)/MBA program of CABM will have to pay two kinds of fees separately: (1) the Program fee and (2) the University Fee. The fee details are as follows:

a) **The Program Fee:** The Program fee for both MBA (Agribusiness)/MBA program has to be paid through DD in favour of 'Dean, College of Agribusiness Management' payable at Pantnagar. A student can also pay this Program fee through RTGS/NEFT based internet transfer and send photocopy of the fee transfer receipt to CABM. (Revolving Fund CABM, Punjab National Bank, Pantnagar, IFSC Code: PUNB0444600, Account No: 4446001100000145)

The details of this Program fee is as follows:

Before Registration in First Semester* 2020-2021 : Rs. 2,50,000/=
Ist day of Registration in First Semester 2021-2022 : Rs. 2,50,000/=

The programme fee for the sponsored candidates will be double of the amount charged for regular/ normal candidate.

*By a date fixed by the Admission Committee but before the registration in first semester.

b) **The University Fee:** The University fee has to be paid at the time of registration through DD in favour of the Comptroller, GBPUAT, Pantnagar. The details of the present University fee is as follows:

First day of Registration in I Semester	2020-2021	:	Rs. 19664.00 **
First day of Registration in II Semester	2020-2021	:	Rs. 19664.00 **
First day of Registration in I Semester	2021-2022	:	Rs. 19664.00 **
First day of Registration in II Semester	2021-2022	:	Rs. 19664.00 **

In addition to the fee above, students have to pay food advance of Rs 20000/- each semester.

** Subject to the revision by the University.

NOTE:

1. The program fee shall be paid as soon as the admission is confirmed as per the Admission Offer letter issued.
2. The program fee shall be per annum irrespective of number of semesters completed by the student in an academic year.
3. Only Caution Money is refundable.
4. Only Food advance is adjustable.
5. Food bills on actual are to be paid every month.

Dean, CABM

Item No. I/2019:8 Admission policy for 2020-21 for others PG programme of the University

Master's Programmes

Major	Existing		Proposed	
	No. of seats	Minimum Eligibility Qualification	No. of seats	Minimum Eligibility Qualification
Botany	06	B.Sc. with Botany as one of the major subjects	**04**	No change.
Environmental Science	05	B.Sc. with Environmental Science/Environmental Biology as one of the major subjects/ B.Sc. in ZBC/ Agriculture/Fisheries/Home Science/ Forestry/ Horticulture	**04**	No change
Genetics & Plant Breeding	12	B.Sc. in Agriculture/Forestry/Horticulture/~~B.Sc. Biology (Zoology and Botany with any other subject)~~	12	B.Sc. in Agriculture / Forestry / Horticulture
Plant Pathology	06	B.Sc. in Agril./Forestry / ~~Biology (Zoology and Botany with any other subject)/ B.Sc. Horticulture~~	**12 (06-UA seats & 06-OS seats)**	B.Sc. in Agril. / Forestry / Horticulture
Electrical Energy System	08	Bachelor's Degree in Electrical Engineering/ Electrical and Electronics Engineering from a recognized University/Institute	**12**	No change
Computer Engineering	08	B.Tech./B.E. degree in Computer Engineering/ Computer Science & Engineering/Computer Science/Information Technology/Information Communication Technology from a recognized University/Institute	**10**	No change.
Microbiology	05	B.Sc. in Microbiology/ Biochemistry/ Agriculture/ Fisheries/ Forestry/ Home Science/ Biotechnology/ Biology (Zoology and Botany with any other subject)/ B.Sc. Horticulture/ B.Tech. (Biotechnology)	**04**	No change
Veterinary Microbiology and Immunology	02	B.V.Sc. & A.H. / B.V.Sc.	**04**	No change
Veterinary and Animal Husbandry Extension	04	B.V.Sc. & A.H. / B.V.Sc.	**02**	No change
Veterinary Surgery and Radiology	04	B.V.Sc. & A.H. / B.V.Sc.	**08**	No change
Livestock Production & Management	04	B.V.Sc. & A.H. / B.V.Sc.	**05**	No change.

Major	Existing		Proposed	
	No. of seats	Minimum Eligibility Qualification	No. of seats	Minimum Eligibility Qualification
Poultry Science	04	B.V.Sc. & A.H. / B.V.Sc.	05	No change
Process and Food Engineering	08	Bachelor's Degree in Agricultural Engineering / ~~Mechanical Engineering~~ / Chemical Engg./ B.Tech. Food Sc./B.Tech. Food Tech./ B.Tech. Dairy Technology /B.Tech. Food Engg. From a recognized University/ Institute	**08**	Bachelor's Degree in Agricultural Engineering / Chemical Engg./ B.Tech. Food Sci./B.Tech. Food Tech./ B.Tech. Dairy Technology /B.Tech. Food Engg. From a recognized University/ Institute
Foods and Nutrition	06	B.Sc. Home Science with Intermediate Science /B.Sc. Food Tech.	03	B.Sc. Home Science with Intermediate Science /B.Sc. Food Tech. / **B.Sc. Community Science**

Ph.D. Programmes

Major	Existing			Proposed		
	No. Of seats		Minimum Eligibility Qualification	No. Of seats		Minimum Eligibility Qualification
	UA Domicile	Other states		UA Domicile	Other states	
Aquaculture	03	01	M.F.Sc. Aquaculture/Mariculture/Aquatic Environmental Management/Inland Aquaculture	02	–	M.F.Sc. Aquaculture/Mariculture/Aquatic Environment Management/Inland Aquaculture
Botany	03	01	Master degree in Botany/Plant Sciences/Plant Physiology / Environmental Sciences	01	01	No change
Environmental Science	03	01	M.Sc.Ag./ M.Sc. in Environmental Science/ Environmental Biology/Agroforestry/ Agricultural Physics/Agriculture with specialization in Environmental Science	01	–	No change.
Irrigation and Drainage Engineering	04	01	Master"s Degree in Agricultural Engg. with specialization in Irrigation & Drainage Engineering/ Soil & Water Conservation Engineering/Soil & Water Engineering/Land and Water Resources Engineering/ ~~Hydrology/Water Resources/Water Science and Technology~~/Masters" degree in Civil Engineering from a recognized University	**04**	**01**	Master's Degree in Agricultural Engineering with specialization in Irrigation & Drainage Engineering/Soil & Water Conservation Engineering/Soil & Water Engineering/Land and Water Resources Engineering/**Water Resources Engineering**/Master's degree in Civil Engineering from a recognized

Major	Existing			Proposed		
	No. Of seats		Minimum Eligibility Qualification	No. Of seats		Minimum Eligibility Qualification
	UA Domicile	Other states		UA Domicile	Other states	
						University/Institute
Information Technology	02	Nil	ME/M.Tech. degree in Information Technology/ Computer Engineering/Computer Science & Engg./ Computer Science/Information Communication Technology/ Electronics & Communication Engineering from a recognized University	**01**	**Nil**	No change
Process and Food Engineering	04	01	Master's Degree in Agricultural Engineering/ Chemical Engg./ Agricultural Processing/ Agril. Processing and Structures/Agril. Structures and Process Engg./Food Process Engineering/ Post Harvest Engg./Food and Bioprocess Engg./Food Engineering / Process and Agril. Structures/ Process & Food Engg./ ~~Mech. Engineering~~ /Biochemical Engg. / Dairy Engg./ Food Engg. / Food Biotech Engg. /Renewable Energy Engg. from a recognized University	**04**	**01**	Master's Degree in Agricultural Engineering/ Chemical Engg./ Agricultural Processing/ Agril. Processing and Structures/Agril. Structures and Process Engg./Food Process Engineering/ Post Harvest Engg./Food and Bioprocess Engg./Food Engineering / Process and Agril. Structures/ Process & Food Engg./ Biochemical Engg. / Dairy Engg./ Food Engg. / Food Biotech Engg. /Renewable Energy Engg. from a recognized University
Microbiology	–	–	Was kept in abeyance during 2019-20	**03**	**Nil**	M.Sc. Microbiology / M.Sc. (Ag.) Microbiology/ M.Sc. Environmental Microbiology / Biochemistry / Food Tech./ Biotechnology / Environmental Science/ Foods & Nutrition / Molecular Biology and Biotechnology
Veterinary Microbiology and Immunology	02	Nil	M.V.Sc. in Veterinary Microbiology & Immunology/ Veterinary Microbiology/ Veterinary Bacteriology/ Veterinary Virology/ Veterinary Immunology/ Molecular Biology & Biotechnology/ Animal Biotechnology/ Veterinary Public Health & Epidemiology/ Mycology	**02**	**01**	No change.
Livestock Production & Management	03	01	M.V.Sc./M.Sc.Ag. in LPM/APM/Animal Nutrition/ Animal Genetics & Breeding/ Animal Breeding/Dairy Husbandry/ Animal	**04**	**02**	No change

Major	Existing			Proposed		
	No. Of seats		Minimum Eligibility Qualification	No. Of seats		Minimum Eligibility Qualification
	UA Domicile	Other states		UA Domicile	Other states	
			Husbandry/Animal Husbandry & Dairying/ Animal Science			
Poultry Science	03	01	M.V.Sc./M.Sc.Ag. in Poultry Science/ Poultry Husbandry/ LPM/Animal Nutrition/ Poultry Nutrition/ Animal Genetics & Breeding/Poultry Breeding	**04**	**02**	No change
Plant Pathology	04	Nil	M.Sc. Ag. In Plant Pathology / M.Sc. Botany with specialization in Plant Pathology / Mycology / M.Sc. in Plant Protection	04	04	No change.
Molecular Biology & Biotechnology	04	01	M.Sc.Ag./M.Sc./M.V.Sc. in Biochemistry / Microbiology / Biotechnology/Molecular Biology & Biotechnology/ Animal Biotechnology/Genetic Engineering/M. Tech. Biotechnology	**04**	**01**	***M.Sc. Ag. Genetics & Plant Breeding /*** M.Sc.Ag./M.Sc./M.V.Sc. in Biochemistry / Microbiology / Biotechnology/Molecular Biology & Biotechnology/ Animal Biotechnology/Genetic Engineering/M. Tech. Biotechnology
Fisheries Resource Management	–	–	Was kept under abeyance during 2019-20.	**To be kept in abeyance.**		
Management	01	Nil	Master's Degree ~~or equivalent~~ in Business Administration/Management	**01**	**Nil**	Masters' Degree in Business Administration/Management
Human Nutrition	02	Nil	M.Sc. in Foods & Nutrition/Food Science & Tech./ Nutrition/Nutrition & Dietetics/ Food Science & Nutrition	**01**	**Nil**	M.Sc. in Foods & Nurtition/Food Science & Tech./**Applied Nutrition/** Nutrition & Dietetics/ Food Science & Nutrition/**Home Science (Foods & Nutrition)**

The P.G. Faculty is requested to consider the above proposal.

Dean, PGS

Item No. I/2019:9 **Proposal for replacement of 02 Core Courses of M.Sc. Agricultural Statistics/ Statistics degree programme in the Department of Mathematics, Statistics and Computer Science, College of Basic Sciences and Humanities**

The Department of Mathematics, Statistics and Computer Science, College of Basic Sciences and Humanities offers M.Sc. programme in Agricultural Statistics/ Statistics.

It has been realised that the Core Courses for M.Sc. Agricultural Statistics/ Statistics programme need to be upgraded to make it more useful for the students to compete in the present scenario.

In view of the above, it is proposed that existing 02 Core Courses for M.Sc. Agricultural Statistics/ Statistics programme should be changed with other existing upgraded approved courses of the department as follows:-

Existing Basic Supporting Courses for M.Sc. (Statistics)			
1.	BPS572	Design of Experiments-I	4(2-0-2*3)
2.	BPS574	Sampling Techniques-I	3(2-0-1*3)

Proposed Basic Supporting courses for M.Sc. (Statistics)			
1.	**BPS662**	**Advanced Experimental Designs**	**3(2-0-1*3)**
2.	**BPS671**	**Theory of Sampling**	**3(2-0-1*3)**

There will be no other change in all other Core Courses & Basic Supporting Courses for M.Sc. Agricultural Statistics/ Statistics programme, however there will be 09 credits in Optional Courses of above degree programme.

28-11-19

HOD

Department of Mathematics, Statistics and Computer Science, CBSH

PROF. & HEAD
Deptt. of Mathematics,
Statistics & Computer Science

PROPOSED COURSE PROGRAMME
(w.e.f. I-Semester 2020-21)

(1) M.Sc. Degree (Agricultural Statistics)

				Credit Hours
(A)	**Core Courses**			
1.	BPS 571	Probability Theory and Distributions		2(2-2-0)
2.	BPS662	Advanced Experimental Designs		3(2-0-1*3)
3.	BPS671	Theory of Sampling		3(2-0-1*3)
4.	BPS 576	Estimation & Statistical Hypotheses Testing		4(3-1-1*3)
5.	BPS 577	Multivariate Analysis and Official Statistics		3(2-0-1*3)
6.	BPS 600	Master's Seminar		1
			Total	**16**
(B)	**Basic Supporting Courses**			
1.	BPM 501	Linear Algebra & Advanced Calculus		3(3-2-0)
2.	BPM 502	Introduction to Computers & Programming		2(1-0-1*2)
			Total	**05**
(C)	**Optional / Minor Courses**		**Total**	**09**
(D)	**BPS 690**	**Master's Research**	**Total**	**20**
			Grand Total	**50**

(2) M.Sc. Degree (Statistics)

				Credit Hours
(A)	**Core Courses**			
1.	BPS 571	Probability Theory and Distributions		2(2-2-0)
2.	BPS 662	Advanced Experimental Designs		3(2-0-1*3)
3.	BPS 671	Theory of Sampling		3(2-0-1*3)
4.	BPS 576	Estimation & Statistical Hypotheses Testing		4(3-1-1*3)
5.	BPS 577	Multivariate Analysis and Official Statistics		3(2-0-1*3)
6.	BPS 600	Master's Seminar		1
			Total	**16**
(B)	**Basic Supporting Courses**			
1.	BPM 535	Differential Equations		3(3-2-0)
2.	BPM 551	Foundation of Theoretical Computer Science		3(3-2-0)
				06
(C)	**Optional / Minor Courses**		**Total**	**09**
(D)	**BPS 690**	**Master's Research**	**Total**	**20**
			Grand Total	**51**

Item No. I/2019:10 Election of Secretary, Post Graduate Faculty

Item No. I/2019:11 Any other item with the permission of Chair