



POST GRADUATE  
**COURSE  
CATALOGUE**  
2010

Revised Version: effective from July, 2011  
(Amended upto April 2015).

# CCSHAU

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## FOREWORD

The application of frontier science and technology in all spheres of life, including agriculture, has revolutionised the generation of new knowledge. In order to sustain, we must keep pace with the scientific developments in present day knowledge society. It is,



therefore, utmost essential to modernize and update our curricula and syllabi from time to time, with the aim to update the knowledge skills of our students, and to infuse a sense of competitiveness among them.

CCS Haryana Agricultural University offers specialization in 36 diverse subjects at post-graduation level (36 at Master's level and 31 at Doctoral level). There was an urgent need to: (i) modernize the existing postgraduate course curricula, (ii) launching fresh formal courses and informal up-skilling programs, and (iii) provide emphasis on supportive courses, practical training, internships etc. to impart wholesome education to the students ó the future stewards, and science and technology applicators.

CCS Haryana Agricultural University seriously deliberated this maiden exercise undertaken by the ICAR in 2009 and decided to implement it w.e.f. 2010 academic session. I appreciate the efforts made by Prof. O. P. Toky, Dean Postgraduate Studies, Prof. R. K. Walia, Department of Nematology, and Dr. Satish Kumar Khokhar, Associate Dean (PGS) for reorganizing the Postgraduate course catalogue are appreciated. I earnestly hope the restructured postgraduate program contained in this document will improve the quality of instructions, knowledge, competitiveness and marketability of our students.

I congratulate all the faculty members involved in restructuring of the PG course catalogue.

July, 2011

-Sd-

K. S. KHOKHAR  
Vice Chancellor,  
CCS HAU Hisar

## **PREFACE**

Revision of course curricula to update the knowledge skills is a continuous process. In this era, the speed of new knowledge generation is explosive; and it is mandatory for any teaching organization to keep pace with the current science and technology developments and incorporate these in their teaching and research programs. In consonance with this mandate, the ICAR constituted a 10 member National Core Group (NCG) on modernizing and strengthening of postgraduate agricultural education under the chairmanship of Dr J. C. Katyal, former Vice-Chancellor, CCS HAU. The NCG with the help of 18 Broad Subject Matter Area Committees accomplished this task through a marathon exercise of consultative meetings and workshops with all the stakeholders. The recommendations of the NCG constituted by the ICAR submitted its report in January, 2009.

CCS HAU is among the forefront to adopt the recommendations of the ICAR. Necessary amendments suggested by Departmental Advisory Committees duly approved by the Boards of Studies of constituent colleges, were discussed in the Resident Instructions Committee, and finally approved by the Academic Council in its 430<sup>th</sup> meeting held on July 17, 2010. The revised course curricula and syllabi have been implemented from the academic session 2010-2011 and the amended version has been implemented with effect from July, 2011.

I highly appreciate the sincere efforts made by Prof. R. K. Walia, Department of Nematology for compiling the courses and arranging them in presentable form. I also admire the efforts made by Dr Satish Khokar, Associate Dean (PGS). Dr. A. K. Chhabra designed the cover page - I owe my appreciation to him.

The sincere efforts and help extended by all the Deans, Directors and Officers of the university, the Heads of various teaching departments and galaxy of faculty members involved in the preparation of this revised document, is gratefully acknowledged.

-Sd-

July 2011

OP TOKY  
Dean, Postgraduate Studies

## **ACRONYMS**

ABM	Agri-business Management
ABT	Animal Biotechnology
AG ECON	Agricultural Economics
AGB	Animal Genetics and Breeding
AGM	Agricultural Meteorology
AGRON	Agronomy
BIF	Bioinformatics
BIOCHEM	Biochemistry
BOT	Botany
CE	Civil Engineering
CHEM	Chemistry
COMP	Computer Section
EE	Electrical, Electronics and Computer Engineering
ENT	Entomology
EXT	Extension Education
FLA	Floriculture and Landscape Architecture
FMPE	Farm Machinery and Power Engineering
FN	Foods and Nutrition
FOR	Forestry
FRM	Family Resource Management
FSC	Fruit Science
GP	Genetics and Plant Breeding
HDFS	Human Development and Family Studies
HECM	Home Science Extension and Communication Management
MBB	Molecular Biology and Biotechnology
ME	Mechanical Engineering
MGT	Business Management (General)
MICRO	Microbiology
NEMA	Nematology
PFE	Processing and Food Engineering
PL PATH	Plant Pathology
PP	Plant Physiology

SOC	Sociology
SOILS	Soil Science
SST	Seed Science and Technology
STAT	Statistics
SWE	Soil and Water Engineering
TAD	Textile and Apparel Designing
ZOO	Zoology

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## CREDIT REQUIREMENTS

**General** (except Veterinary & Animal Sciences, Business Management, Statistics)

Subject	Master's program	Doctoral program
Major	20	15
Minor	09	08
Supporting	05	05
Seminar	01	02
Research	20	45
<b>Total Credits</b>	<b>55</b>	<b>75</b>
Compulsory Non Credit Courses	See relevant section	

**Statistics**

Major	36	18
Minor	09	08
Supporting	05	05
Seminar	01	02
Research	10	45
<b>Total Credits</b>	<b>61</b>	<b>78</b>
Compulsory Non Credit Courses	See pages (iv) - (vii)	

**Business Management (MBA - General and Agribusiness) - Master's Program only**

Compulsory	34	-
Electives	16	-
Seminar	01	-
Project	10	-
<b>Total Credits</b>	<b>61</b>	<b>-</b>
Compulsory Non Credit Courses	See pages (iv) - (vii)	

### Explanation

**Major subject:** The subject (department) in which the student takes admission

**Minor subject:** The subject closely related to students major subject (e.g., if the major subject is Entomology, the appropriate minor subjects should be Plant Pathology & Nematology).

**Supporting subject:** The subject not related to the major subject. It could be any subject considered relevant for student's research work.

**Non-Credit Compulsory Courses:** Please see the relevant section (page v) for details. Five courses (PGS 501-PGS 505) are of general nature and are compulsory for Master's programme. Ph. D. students may be exempted from these courses if already studied during Master's degree.

**Service Course:** A course offered for other disciplines, and not to be counted towards major credits by the department teaching that course.



## **COURSE CODE NUMBERS**

- All courses are divided into two series: 500-series courses pertain to Masterø level, and 600-series to Doctoral level. A Ph. D. student must take a minimum of two 600 series courses, but may also take 500-series courses if not studied during Masterø programme.
- Credit seminar for Masterø level is designated by code no. 591, and the two seminars for Doctoral level are coded as 691 and 692, respectively.
- Similarly, 599 and 699 codes have been given for Masterø research and Doctoral research, respectively.
- For Veterinary and Animal science subjects, the corresponding code numbers for Masterø and Doctoral programme would be 600 and 700 series. This is being recommended to avoid confusion with existing 500 series course designations given by the Veterinary Council of India for B. V. Sc. students.

## **LAYOUT OF THE COURSE CONTENTS**

The contents of each course have been organized into:

- Objective ó to elucidate the basic purpose.
- Theory units ó to facilitate uniform coverage of syllabus for paper setting.
- Suggested Readings ó to recommend some standard books as reference material. This does not unequivocally exclude other such reference material that may be recommended according to the advancements and local requirements.
- A list of journals pertaining to the discipline is provided at the end which may be useful as study material for 600-series courses as well as research topics.
- e-Resources - for quick update on specific topics/events pertaining to the subject.
- Broad research topics provided at the end would facilitate the advisors for appropriate research directions to the PG students.

## NOMENCLATURE OF POSTGRADUATE DEGREE PROGRAMS

Faculty	Discipline PG Degree (Total = 55)	Degree Nomenclature	
		Master's program	Doctoral program
Agricultural Engineering	Farm Machinery & Power Engineering	M. Tech. (Agricultural Engineering)	
	Processing & Food Engineering	M. Tech. (Agricultural Engineering)	
	Soil & Water Engineering	M. Tech. (Agricultural Engineering)	
Agriculture	Agricultural Economics	M. Sc. (Ag.)	Ph. D.
	Agricultural Meteorology	M. Sc. (Ag.)	Ph. D.
	Agronomy	M. Sc. (Ag.)	Ph. D.
	Agri-Business Management/ Business Management	M.B.A. (Agribusiness) M. B.A.	
	Entomology	M. Sc. (Ag.)	Ph. D.
	Extension Education	M. Sc. (Ag.)	Ph. D.
	Forestry	M. Sc. (Forestry)	Ph. D.
	Genetics & Plant Breeding	M. Sc. (Ag.)	Ph. D.
	Horticulture-Floriculture and Landscape Architecture	M. Sc. (Ag.)	Ph. D.
	Horticulture-Fruit Science	M. Sc. (Ag.)	Ph. D.
	Horticulture-Vegetable Science	M. Sc. (Ag.)	Ph. D.
	Nematology	M. Sc. (Ag.)	Ph. D.
	Plant Pathology	M. Sc. (Ag.)	Ph. D.
	Seed Science & Technology	M. Sc. (Ag.)	Ph. D.
Soil Science	M. Sc. (Ag.)	Ph. D.	
Basic Sciences and Humanities	Biochemistry	M. Sc.	Ph. D.
	Bioinformatics	M. Sc.	
	Botany	M. Sc.	Ph. D.
	Chemistry	M. Sc.	Ph. D.
	Fisheries	M. F. Sc.	Ph. D.
	Microbiology	M. Sc.	Ph. D.
	Molecular Biology and Biotechnology	M. Sc.	Ph. D.
	Plant Physiology	M. Sc.	Ph. D.
	Sociology	M. Sc.	Ph. D.
	Statistics	M. Sc.	Ph. D.
Zoology	M. Sc.	Ph. D.	
Home Science	Extension Education and Communication Management	M. Sc. (Home Sc.)	Ph. D.
	Family Resource Management	M. Sc. (Home Sc.)	Ph. D.
	Foods and Nutrition	M. Sc. (Home Sc.)	Ph. D.
	Human Development and Family Studies	M. Sc. (Home Sc.)	Ph. D.
	Textile and Apparel Designing	M. Sc. (Home Sc.)	Ph. D.
Food Science & Technology	Food Science & Technology	M. Sc.	Ph. D.