



इंदिरा गांधी कृषि विश्वविद्यालय  
कृषक नगर, रायपुर 492 012 (छत्तीसगढ़)  
INDIRA GANDHI KRISHI VISHWAVIDYALAYA  
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क्रमांक न.क्र. वि.प.-145.04 / शैक्ष.-1 / 2024 / 358  
प्रति,

रायपुर, दिनांक 30-08-2024

- (1) अधिष्ठाता कृषि संकाय, इंदिरा गांधी कृषि विश्वविद्यालय, रायपुर।
- (2) नोडल अधिकारी (आईजीकेव्हीएमआईएस), नालेज एण्ड टेक्नालॉजी रिसोर्स सेंटर, इंदिरा गांधी कृषि विश्वविद्यालय, रायपुर।
- (3) नोडल अधिकारी (एनईपी 2020), इंदिरा गांधी कृषि विश्वविद्यालय, रायपुर।

विषय :- IMPLEMENTATION OF NEP 2020 AT UG LEVEL - COURSE CURRICULUM OF UNDER GRADUATE FOR B.SC. (HONS.) AGRICULTURE, 1ST YEAR ONLY - REGARDING.

संदर्भ :- विश्वविद्यालय पत्र F.No. ACM-145/ACD-I/2024/3450-3451 दिनांक 16-07-2024.

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विषयान्तर्गत संदर्भित पत्र के अनुक्रम में लेख है कि विद्या परिषद की दिनांक 09 जुलाई 2024 को सम्पन्न हुई 145वीं बैठक में निम्नानुसार निर्णय लिये गये थे :-

The Academic Council in its 145<sup>th</sup> meeting held on 09<sup>th</sup> July 2024, the proposal was discussed in length and it was recommended with incorporation of suggestions to put up in next meeting of Board of Management for its approval (Enclosure - 145.04).

शैक्षणिक सत्र 2024-25 के स्नातक पाठ्यक्रम में प्रथम वर्ष में प्रवेश हेतु काउंसिलिंग दिनांक 01 अगस्त 2024 (कृषि अभियांत्रिकी/खाद्य प्रौद्योगिकी) तथा 09 अगस्त 2024 (कृषि) से प्रारंभ हो गई है। उपरोक्त के तहत प्रवेशित अभ्यर्थियों द्वारा ऑनलाईन कोर्स पंजीयन आदि की कार्यवाही किया जाना है।

अतः उपरोक्त तथ्यों को दृष्टिगत रखते हुए प्रबंध मण्डल की अनुमोदन की प्रत्याशा में एतद् द्वारा NEP 2020 at UG level Course Curriculum of UG for B.Sc. (Hons.) Agriculture, 1<sup>st</sup> year only को शैक्षणिक सत्र 2024-25 प्रथम सेमेस्टर से लागू किया जाता है तथा प्रबंध मण्डल द्वारा अनुमोदन उपरांत पृथक से अधिसूचना प्रसारित किया जावेगा।

संलग्न :- उपरोक्तानुसार।

माननीय कुलपति जी के आदेशानुसार

  
कुलसचिव

पृ. क्रमांक न.क्र. वि.प.-145.04 / शैक्ष.-1 / 2024 / 359  
प्रतिलिपि सूचनार्थ एवं आवश्यक कार्यवाही हेतु प्रेषित :-

रायपुर, दिनांक 30-08-2024

1. निदेशक शिक्षण एवं परीक्षा नियंत्रक, इंदिरा गांधी कृषि विश्वविद्यालय, कृषक नगर, रायपुर।
2. संचालक अनुसंधान/विस्तार सेवायें, इंदिरा गांधी कृषि विश्वविद्यालय, कृषक नगर, रायपुर।
3. लेखानियंत्रक, इंदिरा गांधी कृषि विश्वविद्यालय, रायपुर।
4. अधिष्ठाता छात्र कल्याण, इंदिरा गांधी कृषि विश्वविद्यालय, रायपुर।
5. अधिष्ठाता, कृषि महाविद्यालय, कृषक नगर, रायपुर 492012 (छत्तीसगढ़)।
6. अधिष्ठाता, स्वामी विवेकानंद कृषि अभियांत्रिकी एवं प्रौद्योगिकी महाविद्यालय एवं अनुसंधान केन्द्र, कृषक नगर, रायपुर 492012 (छत्तीसगढ़)।
7. अधिष्ठाता, खाद्य प्रौद्योगिकी महाविद्यालय, कृषक नगर, रायपुर 492012 (छत्तीसगढ़)।
8. अधिष्ठाता, बैरिस्टर ठाकुर छेदीलाल कृषि महाविद्यालय एवं अनुसंधान केन्द्र, सरकंडा, बिलासपुर 495001(छत्तीसगढ़)।
9. अधिष्ठाता, राजमोहिनी देवी कृषि महाविद्यालय एवं अनुसंधान केन्द्र, अजिरमा, अम्बिकापुर 497001(छत्तीसगढ़)।
10. अधिष्ठाता, शहीद गुण्डाधुर कृषि महाविद्यालय एवं अनुसंधान केन्द्र, कुम्हरावन्ड, जगदलपुर 494001 (छत्तीसगढ़)।
11. अधिष्ठाता, संत कबीर कृषि महाविद्यालय एवं अनुसंधान केन्द्र, कवर्धा 491995 (छत्तीसगढ़)।
12. अधिष्ठाता, कृषि महाविद्यालय एवं अनुसंधान केन्द्र, जिला अस्पताल के पिछे, जर्वे (च), जांजगीर चापा 495668 (छत्तीसगढ़)।
13. अधिष्ठाता, दाऊ कल्याण सिंह कृषि महाविद्यालय एवं अनुसंधान केन्द्र, खपराडीह, भाटापारा, जिला-बलौदा बाजार भाटापारा 493118 (छत्तीसगढ़)।
14. अधिष्ठाता, पं. शिव कुमार शास्त्री कृषि महाविद्यालय एवं अनुसंधान केन्द्र, राजनांदगांव 491 441 (छत्तीसगढ़)।
15. अधिष्ठाता, कृषि महाविद्यालय एवं अनुसंधान केन्द्र, कांकेर 494 334 (छत्तीसगढ़)।
16. अधिष्ठाता, कृषि महाविद्यालय एवं अनुसंधान केन्द्र, शासकीय बालक हायर सेकेण्डरी स्कूल के पास, बेमेतरा 491 335 (छत्तीसगढ़)।
17. अधिष्ठाता, कृषि महाविद्यालय एवं अनुसंधान केन्द्र, बैकुण्ठपुर, कोरिया 497 335 (छत्तीसगढ़)।

क्रमशः.....2...

18. अधिष्ठाता, कृषि महाविद्यालय एवं अनुसंधान केन्द्र, बोईरदादर फार्म, रायगढ़ 496 001 (छत्तीसगढ़)।
19. अधिष्ठाता, कृषि महाविद्यालय एवं अनुसंधान केन्द्र, कृषि विज्ञान केन्द्र केम्पस, ग्राम-केरलापाल, नारायणपुर 494661 (छत्तीसगढ़)।
20. अधिष्ठाता, कृषि महाविद्यालय एवं अनुसंधान केन्द्र, छुईखदान, राजनांदगांव (छत्तीसगढ़)।
21. अधिष्ठाता, कृषि महाविद्यालय एवं अनुसंधान केन्द्र, जशपुर (छत्तीसगढ़)।
22. अधिष्ठाता, कृषि महाविद्यालय एवं अनुसंधान केन्द्र, कोरबा (छत्तीसगढ़)।
23. अधिष्ठाता, कृषि महाविद्यालय एवं अनुसंधान केन्द्र, कुरुद, धमतरी (छत्तीसगढ़)।
24. अधिष्ठाता, कृषि महाविद्यालय एवं अनुसंधान केन्द्र, गरियाबंद (छत्तीसगढ़)।
25. अधिष्ठाता, कृषि महाविद्यालय एवं अनुसंधान केन्द्र, महासमुन्द (छत्तीसगढ़)।
26. अधिष्ठाता, कृषि महाविद्यालय एवं अनुसंधान केन्द्र, मर्गा (पाटन), दुर्ग (छत्तीसगढ़)।
27. अधिष्ठाता, कृषि महाविद्यालय एवं अनुसंधान केन्द्र, साजा, बेमेतरा (छत्तीसगढ़)।
28. अधिष्ठाता, कृषि महाविद्यालय, कृषि महाविद्यालय एवं अनुसंधान केन्द्र, लोरमी (छत्तीसगढ़)।
29. अधिष्ठाता, कृषि महाविद्यालय एवं अनुसंधान केन्द्र, पखांजूर, कांकेर (छत्तीसगढ़)।
30. अधिष्ठाता, कृषि महाविद्यालय एवं अनुसंधान केन्द्र, प्रतापपुर, सूरजपुर (छत्तीसगढ़)।
31. अधिष्ठाता, कृषि महाविद्यालय एवं अनुसंधान केन्द्र, शंकरगढ़, बलरामपुर (छत्तीसगढ़)।
32. अधिष्ठाता, भवानीलाल रामलाल साव मेमोरियल कृषि अभियांत्रिकी एवं प्रौद्योगिकी महाविद्यालय एवं अनुसंधान केन्द्र, मुंगेली 495334 (छत्तीसगढ़)।
33. प्राध्यापक एवं विभागाध्यक्ष, सस्य विज्ञान विभाग / आनुवंशिकी एवं पादप प्रजनन विभाग / कीट विज्ञान विभाग / पौध रोग विज्ञान विभाग / पादप कार्यिकी, कृषि जैव रसायन, औषधीय एवं संगंध पौध विभाग / कृषि अर्थशास्त्र विभाग / कृषि सूक्ष्म जीव विज्ञान विभाग / मृदा विज्ञान एवं कृषि रसायन विभाग / कृषि मौसम विज्ञान विभाग / कृषि सांख्यिकी एवं सामाजिक विज्ञान विभाग / पादप आण्विक जीव विज्ञान एवं जैव प्रौद्योगिकी विभाग / कृषि विस्तार विभाग / वानिकी विभाग / कृषि व्यवसाय एवं ग्रामीण प्रबंधन विभाग / फल विज्ञान विभाग / सब्जी विज्ञान विभाग / पुष्प विज्ञान एवं भुदृश्य वास्तुकला विभाग, कृषि महाविद्यालय, रायपुर, कृषक नगर, रायपुर 492012 (छत्तीसगढ़)।  
प्राध्यापक एवं विभागाध्यक्ष, कृषि मशीनरी एवं शक्ति अभियांत्रिकी विभाग / मृदा एवं जल अभियांत्रिकी विभाग / कृषि प्रसंस्करण एवं खाद्य अभियांत्रिकी विभाग, स्वामी विवेकानंद कृषि अभियांत्रिकी एवं प्रौद्योगिकी महाविद्यालय एवं अनुसंधान केन्द्र, कृषक नगर, रायपुर 492012 (छत्तीसगढ़)।
34. पुस्तकालयाध्यक्ष, नेहरु पुस्तकालय/ओ.एस.डी. (स्थापना)/ओ.एस.डी. (लेखा)/उप-कुलसचिव (स्थापना)/ उप-लेखानियंत्रक/ प्रभारी, पीजी सेल/उप परीक्षा नियंत्रक/सहायक परीक्षा नियंत्रक/सूचना एवं जनसंपर्क अधिकारी/सहायक कुलसचिव (स्थापना)/सहायक लेखानियंत्रक/समस्त शाखा अधिकारी (विश्वविद्यालय प्रशासनिक भवन), इंदिरा गांधी कृषि विश्वविद्यालय, कृषक नगर, रायपुर 492012 (छत्तीसगढ़)।
35. सहायक लेखाधिकारी, कृषि महाविद्यालय, रायपुर / स्वामी विवेकानंद कृषि अभियांत्रिकी एवं प्रौद्योगिकी महाविद्यालय एवं अनुसंधान केन्द्र, रायपुर 492012 (छत्तीसगढ़)।
36. माननीय कुलपति जी के निज सहायक, इंदिरा गांधी कृषि विश्वविद्यालय, कृषक नगर, रायपुर 492012 (छत्तीसगढ़) की ओर सूचनार्थ प्रेषित।
37. सर्वर प्रभारी, विश्वविद्यालय वेबसाईट, इंदिरा गांधी कृषि विश्वविद्यालय, कृषक नगर, रायपुर की ओर सर्वसंबंधितों को ई-मेल करने एवं विश्वविद्यालय की वेबसाईट में अपलोड करने हेतु।
38. प्राचार्य / संचालक, कृषि महाविद्यालय, जोरापाली (केनापाली) रोड, रायगढ़ (छत्तीसगढ़) / कृषि महाविद्यालय, कलेक्टर कार्यालय के सामने, दन्तेवाड़ा (छत्तीसगढ़) / भारतीय कृषि महाविद्यालय, पद्मनाभपुर, पुलगांव चौक, दुर्ग (छत्तीसगढ़)/ छत्तीसगढ़ कृषि महाविद्यालय, सनराईस केम्पस, रिसाली (भिलाई), धनोरा रोड, ग्राम-धनोरा, पो.-हनोदा, दुर्ग (छत्तीसगढ़)/ महामाया कृषि महाविद्यालय, नगरी रोड, ग्राम-सियादेही, पो.-अरोद, धमतरी (छत्तीसगढ़)/ श्रीराम कृषि महाविद्यालय, श्रीराम परिसर, ग्राम-ठाकुरटोला, पो.-सोमनी, राजनांदगांव (छत्तीसगढ़)/ भोरमदेव कृषि महाविद्यालय, कवर्धा 491 995 (छत्तीसगढ़)/ मार्गदर्शन संस्थान कृषि महाविद्यालय, रिंग रोड, चोपड़ा पारा, अंबिकापुर, सरगुजा-497001 (छत्तीसगढ़)/ रामनिवास सारडा कृषि महाविद्यालय, गायत्री मंदिर के पास, अंबागढ़ चौकी, राजनांदगांव (छत्तीसगढ़)/ भारतीय कृषि अभियांत्रिकी महाविद्यालय, दुर्ग (छत्तीसगढ़)/ छत्तीसगढ़ कृषि अभियांत्रिकी महाविद्यालय, भिलाई, दुर्ग (छत्तीसगढ़)।
39. सहायक कुलसचिव (शैक्षणिक)/पटल प्रभारी, शैक्षणिक-दो तथा पटल प्रभारी, शैक्षणिक-तीन, शैक्षणिक शाखा, इंदिरा गांधी कृषि विश्वविद्यालय, कृषक नगर, रायपुर को आवश्यक कार्यवाही करने हेतु प्रेषित।

  
कुलसचिव

**Detailed Course out line**  
For  
Undergraduate Program in Agriculture

*as per*  
*National Education Policy 2020*



**Indira Gandhi Krishi Vishwavidyalaya**  
**Raipur (CG) 492012**

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**ACADEMIC PROGRAMME**  
Semester wise course and credits Allocation

**First Year, I Semester**

S.No.	Type of course	Enrolment	Subject	Course Number	Course Title	Credit Hours
1	FC	Compulsory	Multi-disciplinary	ADM 111	Deekshaarambh (1 week)	2(0+2) (NG)
2	SEC	Compulsory (Any one)	Fruit Science	ASEC 111	Plantation crops production and management	4(0+4)
3	SEC		Pathology	ASEC 112	Mushroom production technology	4(0+4)
4	SEC	Compulsory	Agronomy	ASEC 113	Organic Farming	4(0+4)
6	AEC		Extension*	AEXT 111	Communication Skills	2(1+1)
7	CC	Compulsory	Agronomy	AGRO 111	Fundamentals of Agronomy	3(2+1)
8	CC		Soil Science	ASOIL 111	Fundamentals of Soil Science	3(2+1)
9	CC	Compulsory	Fruit Science	AHFR 111	Fundamentals of Horticulture	3(2+1)
10	MDC		Agronomy	AGRO 112	Farming based livelihood systems	3(2+1)
11	CC	Compulsory	Extension	AEXT 112	Rural Sociology and Educational Psychology	2(2+0)
12	AEC		Student welfare	NSS I / NCCI	NSS-I / NCC-I	1(0+1)
13	Optional	Optional	Statistics	ASTAT 111	Introductory mathematics (need based)	1(1+0)
14	OC	Compulsory	Compulsory minimum 10 credits during whole degree program Minimum Required (do not include NG course and online courses)			21(11+10)

\*Extension and any other department with expertise in the subject

**First Year, II Semester**

1	SEC	Compulsory (Any one)	Plant Breeding	ASEC 121	Seed production technology	4(0+4)
2	SEC		Floriculture	ASEC 122	Post-harvest processing technology- (SEC-IV)	4(0+4)
3	SEC	Compulsory	Entomology	ASEC 123	Commercial Beekeeping	4(0+4)
5	AEC		Extension*	AMD 121	Personality Development and Human Values	2(1+1)
6	VAC	Compulsory	Agro-met	AMET 121	Environmental Studies and Disaster Management	3(2+1)
7	CC		Soil Science	ASOIL 121	Soil Fertility Management	3(2+1)
8	CC	Compulsory	Entomology	AENT 121	Fundamentals of Entomology	3(2+1)
9	CC		Animal Sci	AVET 121	Livestock and Poultry Management	2(1+1)
10	CC	Compulsory	Pathology	APATH 121	Fundamentals of Plant Pathology	3(2+1)
11	AEC		Student welfare	NSS II / NCC II	NSS-II / NCC-II	1(0+1)
12	OC	Compulsory	Compulsory minimum 10 credits during whole degree program Minimum Required (do not include on-line courses)			21(10+11)

\*Extension and other expert from any discipline for Personality Development and Human Values

A	IP	Compulsory	Internship project only for those opting for an exit with UG-Certificate	10(0+10)
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Second Year I Semester

S. No.	Type of course	Enrolment	Subject	Course Number	Course Title	Credit Hours
1	SEC	Compulsory (Any one)	Entomology	ASEC 211	Scientific Cultivation of Silk	2(0+2)
2	SEC		Soil Science	ASEC 212	Soil, plant and water testing	2(0+2)
	SEC		Microbiology	ASEC 213	Production technology for bioagents, biopesticides, biofertilizer	2(0+2)
3	MDC	Compulsory	Agri Business	ABM 211	Entrepreneurship Development and Business Communication	3(2+1)
4	AEC	Compulsory	Student welfare	ASW 211	Physical Education, First Aid and Yoga Practices	2(0+2)
5	CC	Compulsory	Plant Breeding	APB 211	Principles of Genetics	3(2+1)
6	CC	Compulsory	Agronomy	AGRO 211	Crop Production Technology-I (Kharif crops)	3(2+1)
7	CC	Compulsory	Fruit Science	AHFR 211	Production Technology of Fruit and Plantation Crops	2(1+1)
8	CC	Compulsory	Extension	AEXT 211	Fundamentals of Extension Education	2(1+1)
9	CC	Compulsory	Entomology	AENT 211	Fundamentals of Nematology	2(1+1)
10	CC	Compulsory	Agronomy	AGRO 212	Principles and Practices of Natural Farming	2(1+1)
11	OC	Compulsory	Compulsory minimum 10 credits during whole degree program			2(1+1)
Minimum Required (do not include on-line courses)						21(10+11)

Second Year II Semester

1	SEC	Compulsory (Any one)	Veg Science	ASEC 221	Horticulture nursery management - SEC-VI	2(0+2)
2	SEC		Entomology	ASEC 222	Commercial Lac Cultivation	2(0+2)
	SEC		Agronomy	ASEC 223	Rice production technology – processing, value addition and marketing	2(0+2)
3	VAC	Compulsory	Statistics	ASTAT 221	Agri informatics	3(2+1)
4	CC	Compulsory	Veg Science	AHVG 221	Production Technology of Vegetables and Spices	2(1+1)
5	CC	Compulsory	Economics	AEC 221	Principles of Agricultural Economics and Farm Management	2(2+0)
6	CC	Compulsory	Agronomy	AGRO 221	Crop Production Technology-II (Rabi Crops)	3(2+1)
7	CC	Compulsory	Engg	AENGG 221	Farm Machinery and Power	2(1+1)
8	CC	Compulsory	Agronomy	AGRO 222	Water Management	2(1+1)
9	CC	Optional	Soil Science	ASOIL 221	Problematic Soils and their management	2(1+1)
10	CC	Compulsory	Plant Breeding	APB 221	Basic of Plant Breeding	3(2+1)
11	CC	Compulsory	Entomology	AENT 221	Pest management in Crops and Stored Grains-I	2(1+1)
12	OC	Compulsory	Compulsory minimum 10 credits during whole degree program			2(1+1)
Minimum Required (do not include on-line courses)						21(12+9)

B	IP	Compulsory	Internship project only for those opting for an exit with UG-Diploma			10(0+10)
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Third Year I Semester

S. No.	Type of course	Enrollment	Subject	Course Number	Course Title	Credit Hours
1	MDC	Compulsory	Economics	AEC 311	Agricultural Marketing and Trade	3(2+1)
2	CC	Compulsory	Agro-met	AMET 311	Introduction to Agro-meteorology	2(1+1)
3	CC	Compulsory	Physiology	ACP 311	Fundamentals of Crop Physiology	3(2+1)
4	CC	Compulsory	Entomology	AENT 311	Pest management in Crops and Stored Grains-II	2(1+1)
5	CC	Compulsory	Plant Pathology	APATH 311	Diseases of Field & Horticultural Crops & their Management	3(2+1)
6	CC	Compulsory	Plant Breeding	APB 311	Crop Improvement - I	2(1+1)
7	CC	Compulsory	Agronomy	AGRO 311	Weed Management	2(1+1)
8	CC	Compulsory	Floriculture	AHFL 311	Ornamental Crops, MAPs and Landscaping	2(1+1)
9	CC	Compulsory	Forestry	AFOR 311	Introductory Agro forestry	2(1+1)
10	ST	Compulsory	Student welfare	ASW 311	Study tour (10-14 days)	2(0+2) NG
11	OC	Compulsory	Compulsory minimum 10 credits during whole degree program			
Minimum Required (do not include NG course and online courses)						21(12+9)

Third Year II Semester

1	CC	Compulsory	Biotechnology	ABT 321	Fundamentals of Agri Biotechnology	3(2+1)
2	CC	Compulsory	Statistics	ASTAT 321	Basic and Applied Agril. Statistics	3(2+1)
3	CC	Compulsory	Plant Breeding	APB 322	Crop Improvement - II	2(1+1)
4	CC	Compulsory	Engg	AENGG 321	Renewable energy in Agriculture and Allied Sector	2(1+1)
5	CC	Compulsory	Agronomy	AGRO 321	Dryland agriculture/ Rainfed agriculture and watershed management	2(1+1)
6	CC	Compulsory	Biotechnology	ABT 321	Essentials of Plant Biochemistry	3(2+1)
7	CC	Compulsory	Microbiology	AMB 321	Agricultural Microbiology and Bioremediation	2(1+1)
8	CC	Compulsory	Economics	AEC 321	Agricultural Finance & Cooperation	2(1+1)
9	CC	Compulsory	Plant Breeding	APB 322	Fundamentals of Seed Science & Technology	2(1+1)
10	OC	Compulsory	Compulsory minimum 10 credits during whole degree program			
Minimum Required (do not include on-line courses)						21(12+9)

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Forth Year I Semester

1	IP / Student READY	Compulsory	Multi-disciplinary	ASR 411	Student READY (RAWEP/ Industrial Attachment /Experiential Learning / Hands on Training/ Project Work / Internship)	20(0+20)
2	OC	Compulsory	Compulsory minimum 10 credits during whole degree program Minimum Required (do not include on-line courses)			20(0+20)

Forth Year II Semester

S. No.	Type of course	Enrolment	Subject	Course Number	Course Title	Credit Hours
1	Elective CC	Compulsory (Any five)	Agri Business	ABM 421	Agri-Business Management	4(3+1)
2	Elective CC		Soil Science	ASOIL 421	Management of natural resources	4(3+1)
3	Elective CC		SS, Ento, Path	AMD 421	Agrochemicals	4(3+1)
4	Elective CC		Agri Business	ABM 422	Agricultural Journalism	4(3+1)
5	Elective CC		Floriculture	AHFL 421	Landscaping	4(3+1)
6	Elective CC		Plant breeding	APB 421	Commercial Plant breeding	4(3+1)
7	Elective CC		Biotechnology	ABT 421	Food safety and standards	4(3+1)
8	Elective CC		Soil Science	ASOIL 422	Bioformulation and Nano-formulation	4(3+1)
9	Elective CC		Microbiology	AMB 422	Biopesticides and Biofertilizers	4(3+1)
10	Elective CC		Meteorology	AMET 421	System Simulation and Agroadvisory	4(3+1)
11	Elective CC		Veg Sci	AGVG 421	Hi-tech Horticulture	4(3+1)
12	Elective CC		Veg Sci	AHVG 421	Protected cultivation	4(3+1)
13	Elective CC		Meteorology	AMET 422	Climate Resilient Agriculture	4(3+1)
14	Elective CC		Biotechnology	ABT 422	Biotechnology of Crop Improvement	4(3+1)
15	Elective CC		Engineering	AENGG 421	Geoinformatics and Remote Sensing, precision farming	4(3+1)
16	Elective CC		Veg Sci	AHVG 422	Micro-propagation Technologies	4(3+1)
17	Elective CC		Plant breeding	APB 422	Commercial Seed Production	4(3+1)
18	Elective CC		Agronomy	AGRO 421	Principles and Practices of Organic Farming / Conservation Agriculture	4(3+1)
19	Elective CC		Physiology	ACP 421	Food Science and Nutrition	4(3+1)
20	Elective CC		Floriculture	AHFL 422	Post-Harvest Technology and Value Addition	4(3+1)
21	Elective CC		Entomology	AENT 421	Vertebrates management	4(3+1)
21	OC	Compulsory	Compulsory minimum 10 credits during whole degree program Minimum Required (do not include on-line courses)			20(15+5)

On-line courses to be completed during the whole degree program

1	OC	Compulsory	Multi-disciplinary	Online courses offered by various government organizations (like UGC / ICAR / CSIR) / institutes (like IIT) / State Agriculture Universities. The course should be different than the one opted during the degree program offered by IGKV	10
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On-line courses be completed preferably within seven semesters so that their degree may be awarded timely.

General Credit Allocation Scheme of UG program

Semester	Core course (Major + Minor) CC	Multi-Disciplinary Course (MCD)	Value Added Course (VAC)	Ability Enhancement Course (AEC)	Skill Enhancement Course (SEC)	Internship / Project / Student READY (IP / Student READY)	Total Credits	Non-gradual (NG)	Online Course (OC)
I	11	3		3	4		21	2	
II	11		3	3	4		21		
Post-II						10			
III	14	3		2	2		21		
IV	16		3		2		21		10
Post-IV						10			
V	18	3					21	2	
VI	21						21		
VII	20						20		
VIII						20	20		
Total	111	9	6	8	12	20	166	4	10

177 is minimum, a student can opt for at the most 9 credit (~5%) extra over 177.

Course type coding

FC	Foundation Course
SEC	Skill Development Course
AEC	Ability Enhancement Course
CC	Core Courses
Elective CC	Elective Core course
MDC	Multi-Disciplinary Course
Optional	Optional
VAC	Value Added Course
NG	Non-gradual
OC	online courses
IP	Internship / Project
ST	Study tour

ADM 111	Deekshaarambh (1 week)	2(0+2) (NG)
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Objectives:

1. Help for cultural Integration of students from different backgrounds,
2. Know about the operational framework of academic process in the University/College/Institute
3. Instilling life and social skills,
4. Social Awareness, Ethics and Values, Team Work, Leadership, Creativity, etc.
5. Identify the traditional values and indigenous cultures along with diverse potentialities both in indigenous and developed scenario.
6. Identify strength and weakness of the students in different core areas of the discipline.

The details of activities will be decided by the parent universities. The structure shall include, but not restricted to:

- i. Discussions on operational framework of academic process in the University, as well as interactions with academic & research managers of the University
- ii. Interaction with alumni, business leaders, perspective employers, outstanding achievers in related fields, and people with inspiring life experiences
- iii. Group activities to identify the strength and weakness of students (with expert advice for their improvement) as well as to create a platform for students to learn from each other's life experiences
- iv. Activities to enhance cultural Integration of students from different backgrounds.
- v. Field visits to related fields/ establishments
- vi. Sessions on personality development (instilling life and social skills, social awareness, ethics and values, team work, leadership, etc.) and communication skills

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1. Description and identification of coconut varieties
2. Selection of coconut and arecanut mother palm and seed nut
3. Planting of seed nuts in nursery, layout and planting of coconut, arecanut, oil palm, cashew nut, cacao gardens,
4. Manuring, irrigation; mulching, raising masonry nursery for palm,
5. Nursery management in cacao.
6. Description and identification of species and varieties in coffee, harvesting, grading, pulping, fermenting, washing, drying and packing of coffee, seed berry collection, seed extraction, treatment and sowing of coffee, epicotyl, softwood,
7. Grafting and top working in cashew, working out the economics and project preparation for coconut, arecanut, oil palm, cashew nut, cacao, etc.
8. Mother plant selection, preparation of cuttings and rooting of tea under specialized structure, training, centering, pruning, tipping and harvesting of tea

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1. Mushroom Diversity: Edible, Poisonous, Mycorrhizal and medicinal mushrooms
2. Identification, Taxonomy and Characterization of Mushrooms
3. Global status of Mushroom Spawn and Crop Production and its export from India
4. Mushroom cultivation & research in India
5. Medicinal and Nutraceutical Attributes of Mushroom
6. Acquaintance with different instruments used in mushroom spawn production
7. Pure Culture Techniques in Mushroom Spawn production and Strain Improvement
8. Preparation of mother and commercial spawn and their maintenance
9. Low Cost Techniques for Spawn Production at Village level
10. Advances in Composting during Button Mushroom Production
11. Commercial Production technology of Button Mushroom
12. Techniques of Strain Improvement in cultivable mushrooms
13. Seasonal Growing of Button Mushrooms
14. Pipe Technology of Seasonal Button Mushroom Production and Mushroom entrepreneurship
15. Recent advances in the cultivation technology of paddy straw mushroom
16. Cultivation of Paddy Straw Mushroom
17. Post-Harvest Processing of Paddy Straw mushroom
18. Milky Mushroom Production Technology
19. Production Technology of Oyster Mushroom
20. Cultivation of Lion's Mane (*Hericium* sp.) and Split gill Mushroom (*S. commune*)
21. Specialty Mushrooms (*Auricularia*, *Flammulina*, *Ganoderma*): Cultivation Prospects
22. Strainal Improvement and Cultivation Technology of Shitake Mushroom
23. Post-harvest Processing and management of Mushrooms
24. Important biotic stresses and their management in mushroom cultivation
25. Recycling of Spent Mushroom Substrate
26. Mushroom recipes and their value-added products
27. Extension Approaches for Popularization of Mushrooms
28. Field visits, Interaction and Success stories of progressive Mushroom Growers and Women SHGSs in Chhattisgarh
29. Marketing Strategies, Start-Ups and Funding Avenues in Mushroom

1. Organic farming and present status and development; principles of organic farming: benefits and scope of organic farming.
2. Chemical farming vs organic farming
3. Organic Production Technology
4. International, National and State norms of organic farming
5. Farm designing, Planning and layout of organic farm, Buffer zone
6. Land preparation, tillage, Choice of crops and varieties, Seed treatment and planting, Water management and Contamination Control
7. Crop rotation, cropping pattern and cropping systems, intercropping, Farming system, Integrated farming system, Livestock management in organic farming, Farm implement
8. Indigenous Technical Knowledge
9. Initiatives taken by the central and state governments, NGOs and other organizations for promotion of organic agriculture in India.
10. Nutrient use in organic farming, **Residue recycling**: Preparation of enriched farm yard manure, Preparation of different methods of composting viz, Indore method, Bangalore methods, Coimbatore method and NADEP method, Vermicompost, Application of compost, Different methods of bio-fertilizers (*Azotobacter*, *Azospirillum*, *Azolla*, *BGA*, *Rhizobium*, *PSB* and *VAM*) application in various crops. Preparation and application of liquid manures viz. Vermi wash, Jeevamrit, Panchagavya, Amrit pani etc,
11. Fundamentals of insect, disease and weed management under organic mode of production-cultural, mechanical and biological methods-non chemical pest & disease management. Mulching: types, advantages, Identification of beneficial farm insect, Botanical pesticide preparation of Neem products and other botanicals for pest and disease control viz. Neemastra, Agnishtra, BrahmanastraBeejamrit, Deshparni etc. Use of eco-friendly insect management techniques viz. Pheronone trap, light trap, yellow cards, bird perch etc. for monitoring and insect management purpose, Dose calculation and application method of bio-pesticides viz. *Trichogramma*, *Pseudomonas*, *Fusarium*, *Bacillus thuringiensis*, *Methytrhizium* and *Beauveria bassiana*; Ha- NPV and SL-NPV etc. Myco-herbicides.
12. Visit of organic farm and field based organic experiments to study the various components, Visit to organic clusters and bio control lab to study the maintenance of biofertilizers/bio-inoculant cultures, Case studies of Indigenous Technical knowledge (ITK) for nutrient, insect, pest, disease and weed management.
13. Organic certification- Requirement, guidelines, agencies, registration, documentation, advantages and procedure of organic certification, Visit to organic certification agencies for understating certification procedure. Various Current Government schemes related to organic farming. Crop production standards, Quality consideration- labelling and accreditation procedures for organic products, Marketing Strategies of organic produces – past experiences and future prospects, import and export polices, requirements for export, agencies involved in export of organic produce and incentives for organic production & geo-tagging. Start-Ups and Funding Avenues in Organic farming.

AEXT 111	Communication Skills	2(1+1)
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*\*Extension and any other department with expertise in the subject*

**Objective:**

- (1) To acquire competence in oral, written, and non-verbal communication, develop strong personal and professional communication and demonstrate group communication in English.
- (2) To prepare students to be confident communicators in different real-life contexts through repetitive oral practices and student-student cooperation.

**Theory:**

**Reading Comprehension:** (i) War Minus Shooting – The Sporting Spirit (George Orwell), (ii) A Dilemma – A Layman Looks at Science (Raymond B. Fosdick), (iii) You and Your English – Spoken English and Broken English (G.B. Show).

**Vocabulary building:** Synonym, Antonyms, Homonyms and Homophones, and often confused words, Exercises to help the students in the enrichment of vocabulary-based TOFEL and GRE and other competitive examinations.

**Structural and Functional Grammar:** Sentences, Sentence structure, Phrases and clauses, Tense, Correct uses of Nouns, Pronouns, Adjectives, Adverbs, and Articles, Agreement of verb with the subject, Prepositions, The Passive Voice, Direct and Indirect Narration

**Writing Skills:** Letter Writing – Mechanics of good letter, Effective Business Correspondence, Personal Correspondence; Report Writing – Reports of events, meetings, experiments, etc., Paragraph Writing, Précis Writing, Preparation of Curriculum Vitae/resume and job application

**Practical:**

**Listening Comprehension:** Listening to short talks, lectures, speeches (Scientific, commercial and general in nature)

**Communication:** Spoken English, Oral communication, Stress and intonation, conversation practices

**Oral Presentation of Reports:** Seminars and Conferences, features of oral presentation, regulating speech, stage manners: grooming, body language posture, eye contact, voice modulation, preparation of visual aids (practice of presentation by using PowerPoint and LCD projector by individual on topics related to agriculture, like Organic Farming, Global Warming, Protected Cultivation, Disaster Management, etc.), Feedback on presentations.

**Conversation practices:** Rate of speech, clarity of voice, speaking and listening politeness

**Reading Skills:** Reading comprehension/dialogues, rapid reading, improving reading skills

**Meetings:** Purpose, procedure, participation, chairmanship, physical arrangements, practice of preparing agenda and minutes

**Public speaking practices**

**Group Discussions and Debates** (on agriculture and current topics): testing initiatives, team spirit, leadership, intellectual ability

**Interview techniques**

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**Theory:**

- Unit-I War Minus Shooting – The Sporting Spirit (George Orwell)**
- (a) Reading comprehension
  - (b) Vocabulary – Synonym, Antonyms, and often confused words
  - (c) Exercises to help the students in the enrichment of vocabulary-based TOFEL and GRE and other competitive examinations
- Unit-II A Dilemma – A Layman Looks at Science (Raymond B. Fosdick)**
- (a) Reading comprehension
  - (b) Vocabulary – Homonyms and Homophones
  - (c) Exercises on Figurative Language & Idiomatic Language (e.g. dust and ashes, doorstep of doom, boundaries of knowledge, apple of one's eye, in a fix, etc.)
- Unit-III You and Your English – Spoken English and Broken English (G.B. Show)**
- (a) Reading comprehension
  - (b) Language study, Functional Grammar, Agreement of verb with Subject
- Unit-IV Structural and Functional Grammar**
- (a) Sentences, Sentence structure
  - (b) Phrases and clauses
  - (c) Tense
  - (d) Correct uses of Nouns, Pronouns, Adjectives, Adverbs, and Articles
  - (e) Agreement of verb with the subject
  - (f) Prepositions
  - (g) The Passive Voice
  - (h) Direct and Indirect Narration
- Unit-V Writing Skills**
- (a) Letter Writing – Mechanics of good letter, Effective Business Correspondence, Personal Correspondence–
  - (b) Report Writing – Reports of events, meetings, experiments, etc.
  - (c) Paragraph Writing
  - (d) Précis Writing
  - (e) Preparation of Curriculum Vitae/resume and job application

**Practical:**

- (i) **Listening Comprehension:** Listening to short talks, lectures, speeches (Scientific, commercial and general in nature)
- (ii) **Communication:** Spoken English, Oral communication, Stress and intonation, conversation practices
- (iii) **Oral Presentation of Reports:** Seminars and Conferences, features of oral presentation, regulating speech, stage manners: grooming, body language posture, eye contact, voice modulation, preparation of visual aids (practice of presentation by using PowerPoint and LCD projector by individual on topics related to agriculture, like Organic Farming, Global Warming, Protected Cultivation, Disaster Management, etc.), Feedback on presentations.

- (iv) **Conversation practices:** Rate of speech, clarity of voice, speaking and listening politeness
- (v) **Reading Skills:** Reading comprehension/dialogues, rapid reading, improving reading skills
- (vi) **Meetings:** Purpose, procedure, participation, chairmanship, physical arrangements, practice of preparing agenda and minutes
- (vii) Public speaking practices
- (viii) **Group Discussions and Debates** (on agriculture and current topics): testing initiatives, team spirit, leadership, intellectual ability
- (ix) Interview techniques

**Recommended Book:**

1. 'Current English for Colleges' by - N. Krishnaswamy & T. Sriraman, MacMillan India Limited, Madras, 1995.

**Suggested Reading:**

1. V. R. Narayan Swami. 'Strengthen your Writing,' Orient Longman Publication.
2. G. S. R. K. Babu Rao. 'Business Communication and Report Writing', Himalaya Publishing House, Mumbai.
3. Geeta Nagraj. 'Write to Communicate', Cambridge University Press India Pvt. Ltd. New Delhi. 2008.
4. V. N. Arora & Laxmi Chandra. 'Improve your Writing', Oxford University Press.
5. N. Krishna Swami & N.T. Sriraman. 'Creative English for Communication', MacMillan India Limited.
6. Krishna Mohan & Meena Banerji. 'Developing Communication Skill', MacMillan India Limited. 2007.
7. Thomson A.J. and Martinet A.V. 'A Practical English Grammar'. Oxford University Press. 1977.
8. P. Kiranmai Dutt & Geetha Rajeevan. 'Basic Communication Skills'. Cambridge University Press India Pvt. Ltd. New Delhi. 2007.
9. M.L. Tickoo, A. E. Subramanian & P. R. Subramanian. 'Intermediate Grammar Usage and Composition'. Orient Longman Private Limited, Mumbai. 2008.

**Objectives:** To impart the basic and fundamental knowledge of Agronomy.

**Theory:**

**Unit – 1**

Agronomy and its scope: Definition, Meaning and scope of Agronomy; Art, science and business of crop production, relation of Agronomy with other disciplines of Agricultural Science, Fields crops and classification, importance, ecology and ecosystem, Seeds and sowing: Definitions of crops, variety and seed. Factors affecting crop stands establishment: good quality seed, proper tillage, time of sowing seed rate, depth and method of sowing: broadcasting, drilling, dibbling, transplanting etc.

**Unit – 2**

Tillage and tillage: Definition, objectives, types, advantages and disadvantages of tillage including conservation tillage. Crop density and geometry: plant geometry and planting geometry, its effect on growth, yield

Crop nutrition: Definition of essential nutrients, criteria of essentiality, functional elements, classification of essential nutrients, role of macro and micro nutrients. Nutrient absorption, active and passive absorption of nutrients, forms of plant nutrients absorbed by plants, Combined /un-combined forms

**Unit – 3**

Manures and fertilizers, nutrient use efficiency: Sources of nutrients: Inorganic (fertilizers), organic (manures) and bio fertilizers; their classification and characteristics, method of preparation and role of organic manures in crop production, Integrated Nutrient Management: Meaning, different approaches and advantages of INM

Green-manure-Role in crop production: Definition, objectives types of green-manuring, desirable characteristics, advantages and limitations of green manuring,

**Unit – 4**

Water management: Water resources of the world, India and the state; Soil Moisture Constants – gravitational water, capillary water, hygroscopic water, Soil moisture constants, Concept of water availability to plants, soil- plant-water relationship, crop water requirement, water use efficiency, Methods of irrigation: Scheduling of irrigation, different approaches of scheduling irrigation

**Unit-5**

Weeds: Definition, Importance and basics of classification of weeds and their control  
Cropping systems: Factors affecting cropping systems, major cropping patterns and systems in the country. Sustainable crop production: Definition, importance and practices, natural resources and conservation pollution and pollutants, Allelopathy: Meaning and importance in crop production, Growth and development of crops: Definition, Meaning and vactors affecting growth and development.

**Practical:**

1. A visit to Instructional Crop farm and study on field crops,
2. Identification of crops, seeds, fertilizers, pesticides
3. Crops and cropping systems in different Agro-climatic zones of the state
4. Study of some preparatory tillage implements, Study of inter tillage implements
5. Practice of ploughing / puddling, Study and practice of inter cultivation in field crops

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6. Numerical exercises on calculation of seed, plant population and fertilizer requirement
7. Study of yield contributing characters and yield estimation of crops
8. Identification of weeds in different crops
9. Seed germination and viability test of seed
10. Practice on time and method of application of manures and fertilizers
11. Measurement of soil moisture by gravimetric and volumetric method
12. Determination of bulk density, Determination of field capacity
13. Determination of gross and net irrigation requirement
14. Determination of infiltration rate

**Suggested readings:**

1. William L Donn.1965. Meteorology. McGraw-Hill Book Co. New York.
2. Yawalkar K S and Agarwal J P.1977. Manures and Fertilizers. Agricultural Horticultural Publishing House, Nagpur.
3. Rao V S.1992. Principles of Weed Science. Oxford and IBH Publishing Co. Ltd. New Delhi.
4. Reddy Yellamanda T and Shankar Reddy G H.1995.Principles of Agronomy. Kalyani Publishers, Ludhiana.
5. Reddy, S.R.2008. Principle of Crop Production, Kalyani Publishers, Ludhiana

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ASOIL 111	Fundamentals of Soil Science	3(2+1)
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Objectives:

Unit-I

Soil- Pedological and edaphological concepts. Rocks and minerals, weathering, soil formation, soil profile, Components of soil. soil temperature, soil air, soil water.

Unit-II

Soil colour, soil texture, soil structure. bulk density and particle density, soil consistency and plasticity soil temperature, soil air, soil water.

Unit-III

Soil reaction and buffering capacity. Soil colloids- Inorganic and organic, silicate clays: constitution and properties. Sources of charge on soil colloids. Ion exchange, cation exchange capacity, base saturation.

Unit-IV

Soil taxonomy, keys to soil orders. Soils of India and Chhattisgarh

Unit-V

Soil organic matter: composition, properties and its influence on soil properties. Soil organisms, macro and microorganisms, their beneficial and harmful effects. Soil pollution, prevention and mitigation of soil pollution

Practical

1. Study of general properties of minerals,
2. study of minerals-silicate and non-silicate minerals,
3. study of rocks-igneous, sedimentary and metamorphic rocks;
4. study of a soil profile, collection and processing of soil for analysis,
5. study of soil texture-feel method, mechanical analysis, determination of bulk density, particle density and soil porosity,
6. determination of soil colour, determination of soil moisture, Study of infiltration rate of soil
7. Introduction to analytical chemistry and expression of strength of solutions.
8. Introduction to titrimetric analysis.
9. Determination of soil pH and electrical conductivity
10. Estimation of organic matter content of soil

Suggested Readings:

ASOIL 111

AP/10

**Objectives:**

1. To provide knowledge on different branches of horticulture viz. pomology, olericulture, floriculture and landscaping, spices and medicinal plants
2. To provide knowledge on orchard management, propagation methods, cultural operations and nutrient management of horticultural crops
3. To provide knowledge on different physiological aspects of horticultural crops

**Theory:****Unit I -**

Horticulture- Definition, branches, importance and scope. Botanical classification of Horticultural crops, Soil and climate requirement for Horticultural Crops. Introduction of Medicinal and Aromatic plants.

**Unit II -**

Plant propagation methods and propagation structures. Causes and types of seed dormancy and their remedial measures. Seed germination- types, process and factor affecting seed germination.

**Unit III -**

Principles of orchard establishment. Principles and methods of training and pruning of fruit crops.

**Unit IV -**

Juvenility and flower bud differentiation of fruit crops. Unfruitfulness in fruit orchard, pollination, pollinizers and pollinators, fertilization and parthenocarpy.

**Unit V -**

Importance and applications of bio-regulators in Horticultural crops. Irrigation methods and Fertilizer application, fertigation and water-soluble fertilizers in Horticultural crops.

**Practical:**

1. Identification and nomenclature of fruits.
2. Layout of fruit orchard.
3. Digging of pit and system of planting.
4. Nursery raising techniques of fruit crops.
5. Understanding of plant propagation structures.
6. Propagation through seeds and plant parts.
7. Containers, potting mixture, potting and repotting.
8. Propagation of plants through cutting and layering.
9. Propagation plants through budding and grafting.
10. Training and pruning methods in fruit crops.
11. Preparation of fertilizer mixture and application.
12. Preparation and application of plant growth regulators.
13. Layout of different irrigation systems.
14. Maturity studies, harvesting, grading, packaging and storage.

**Suggested readings:**

1. Basics of Horticulture by Jitendra Singh
2. Introduction to Horticulture by N. Kumar
3. Handbook of Horticulture by K.L. Chadda

AGRO 112	Farming based livelihood systems	3(2+1)
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**Objectives:**

- i. To make the students aware about farming based livelihood systems in agriculture
- ii. To disseminate the knowledge and skill how farming based systems can be a source of livelihood

**Theory**

**Unit – 1**

Status of agriculture in India and different states, Income of farmers and rural people in India, Livelihood-Definition, concept and livelihood pattern in urban & rural areas, Different indicators to study livelihood systems.

**Unit – 2**

Agricultural livelihood systems (ALS) : Meaning, approach, approaches and framework , Definition of farming systems and farming based livelihood systems Prevalent Farming systems in India contributing to livelihood.

**Unit – 3**

Types of traditional & modern farming systems. Components of farming system/ farming based livelihood systems- Crops and cropping systems, Livestock, (Dairy, Piggery, Goatry, Poultry, Duckry etc.), Horticultural crops, Agro--forestry systems, Aqua culture Duck/Poultry cum Fish, Dairy cum Fish, Piggery cum Fish etc., Small, medium and large enterprises including value chains and secondary enterprises as livelihood components for farmers, Factors affecting integration of various enterprises of farming for livelihood.

**Unit – 4**

Feasibility of different farming systems for different agro-climatic zones, Commercial farming based livelihood models by NABARD, ICAR and other organizations across the country, Case studies on different livelihood enterprises associated with the farming.

**Unit-5**

Risk & success factors in farming based livelihood systems, Schemes & programmes by Central & State Government, Public & Private organizations involved in promotion of farming based livelihood opportunities. Role of farming based livelihood enterprises in 21<sup>st</sup> Century in view of circular economy, green economy, climate change, digitalization & changing life style.

**Practical:**

1. Survey of farming systems and agricultural based livelihood enterprises,
2. Study of components of important farming based livelihood models/ systems in different agro-climatic zones,
3. Study of production and profitability of crop based, livestock based, processing based and integrated farming based livelihood models,
4. Field visit of innovative farming system models.
5. Visit of Agri-based enterprises & their functional aspects for integration of production, processing & distribution sectors
6. Study of agri-enterprises involved in industry and service sectors(Value Chain Models),
7. Learning about concept of project formulation on farming based livelihood systems along with cost & profit analysis,
8. Case study of Start-Ups in agri-sectors.

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**Suggested readings:**

- 1 Dixon, J. and A. Gulliverwith D. Gibbon (2001). Farming Systems and Poverty: Improving Farmers' Livelihoods in a Changing World. FAO & World Bank, Rome, Italy & Washington, DC, USA
- 2 Ashley, C.; Carney, D. (1999). Sustainable Livelihoods: Lessons from Early Experience; Department for International Development: London, UK,; Volume 7
- 3 Reddy, S.R. 2016. Farming System and Sustainable Agriculture, Kalyani Publishers, New Delhi.
- 4 Panwar et al. 2020. Integrated Farming System models for Agricultural Diversification, Enhanced Income and employment, Indian Council of Agricultural Research, New Delhi.
- 5 Singh, J.P., et al. 2015. Region Specific Integrated Farming System Models, ICAR-Indian Institute of Farming Systems Research, Modipuram. Walia, S. S. and U. S. Walia, 2020. Farming System and Sustainable Agriculture, Scientific Publishers, Jodhpur, Rajasthan.
- 6 Livelihood Improvement of Underprivileged Farming Community : Some Experiences from Vaishali, Samastipur, Darbhanga and Munger Districts of Bihar by B. P. Bhatt, 8Abhay Kumar, P.K. Thakur, Amitava Dey Ujjwal Kumar, Sanjeev Kumar, B.K. Jha, L9okendra Kumar, K. N. Pathak, A. Hassan , S. K. Singh, K. K. Singh and K. M. Singh ICAR Research Complex for Eastern Region ICAR Parisar, P.O. Bihar Veterinary College, Patna - 800 014, Bihar
- 7 Carloni, A(2001) Global Farming Systems Study: Challenges and Priorities to 2030–Regional Analysis: Sub-Saharan Africa, Consultation Document, FAO, Rome, Italy
- 8 Evenson, R.E. (2000). Agricultural Productivity and Production in Developing Countries' In FAO, The State of Food and Agriculture, FAO, Rome, Italy
- 9 Agarwal, A. & Narain, S. (1989). Towards Green Villages: A strategy for Environmentally, Sound and Participatory Rural Development, Center for Science and Environment, New Delhi, India

2/11

Agarwal

**Objective:**

Provide knowledge on concept and importance of sociology and rural sociology as well as the relationship with Extension Education

**Theory:****Unit-I**

Sociology and Rural sociology: Meaning, Definition, Scope, Importance of Rural Sociology in Agricultural Extension, and Interrelationship between Rural Sociology & Agricultural Extension. Indian Rural Society, Important characteristics, Differences and Relationship between Rural and Urban societies.

**Unit-II**

Social Groups- Meaning, Definition, Classification, Factors considered information and organization of groups, Motivation in group formation and Role of social groups in Agricultural Extension. Social Stratification: - Meaning, Definition, Functions, Basis for stratification, Forms of Social Stratification-Characteristics and-Differences between Class & Caste System.

**Unit-III**

Cultural concepts- Culture, Customs, Folkways, Mores, Taboos, Rituals and Traditions- Meaning, Definition and their Role in Agricultural Extension. Social Institutions- Meaning, Definition, Major institutions in Rural Society, Functions, and their Role in agricultural Extension. Social Organizations- Meaning, Definition, Types of organizations and role of social organizations in agricultural Extension.

**Unit-IV**

Social Control- Meaning, Definition, need of social control and Means of Social Control. Social change- Meaning, Definition, Nature of Social Change, Dimensions of social change and factors of social change. Leadership- Meaning, Definition, Classification, Roles of leader, Different methods of Selection of Professional and Lay leaders. Advantages and Limitations in use of local leaders in Agricultural Extension.

**Unit-V**

Psychology and Educational Psychology- Meaning, Definition, Scope, and Importance of Educational Psychology in Agricultural Extension. Intelligence- Meaning, Definition, Types, Factors affecting intelligence and Importance of intelligence in Agricultural Extension. Motivation- Concept and types of motivation. Teaching-Learning Process-Meaning and Definition of Teaching, Learning, learning experience and Learning situation, Elements of learning situation and its characteristics. Principles of learning and their implication of teaching.

**Suggested readings**

1. J.B. Chitambar-Introductory Rural Sociology
2. Ray, G.L. -Extension Communication and Management
3. Dahama O.P. and Bhatnagar, O.P.-Education and Communication for Development
4. Sandhu A.S.- Text book on Agricultural Communication
5. A.R. Desai-Rural Sociology in India
6. R Velusamy Textbook on Rural Sociology and Educational Psychology
7. M.B. Ghorpade- Essential of psychology
8. Web Materials
9. Prepared YouTube videos

NCC I	NCC-I	1(0+1)
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### Objective

1. To develop qualities of character, courage, comradeship, discipline, leadership, secular outlook, spirit of adventure and sportsmanship and the ideals of selfless service among the youth to make them useful citizen.
2. To create a human resource of organized trained and motivated youth to provide leadership in all walks of life including the Armed Forces and be always available for the service of the nation.

### Practical/ Awareness activities

- Aims, objectives, organization of NCC and NCC song. DG's cardinals of discipline.
- Drill- aim, general words of command, attention, stands at ease, stand easy and turning.
- Sizing, numbering, forming in three ranks, open and close order march, and dressing.
- Saluting at the halt, getting on parade, dismissing, and falling out.
- Marching, length of pace, and time of marching in quick/slow time and halt. Side pace, pace forward and to the rear. Turning on the march and wheeling. Saluting on the march.
- Marking time, forward march, and halt. Changing step, formation of squad and squad drill.
- Command and control, organization, badges of rank, honors, and awards
- Nation Building- cultural heritage, religions, traditions, and customs of India. National integration. Values and ethics, perception, communication, motivation, decision making, discipline and duties of good citizens. Leadership traits, types of leadership. Character/personality development. Civil defense organization, types of emergencies, firefighting, protection. Maintenance of essential services, disaster management, aid during development projects.
- Basics of social service, weaker sections of society and their needs, NGO's and their contribution, contribution of youth towards social welfare and family planning.
- Structure and function of human body, diet and exercise, hygiene and sanitation. Preventable diseases including AIDS, safe blood donation, first aid, physical and mental health. Adventure activities. Basic principles of ecology, environmental conservation, pollution and its control.

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NSS I	NSS-I	1(0+1)
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### Objective

1. To develop qualities of character, courage, comradeship, discipline, leadership, secular outlook, spirit of adventure and sportsmanship and the ideals of selfless service among the youth to make them useful citizen.
2. To create a human resource of organized trained and motivated youth to provide leadership in all walks of life including the Armed Forces and be always available for the service of the nation.

### Practical/ Awareness activities

- Arms Drill- Attention, stand at ease, stand easy. Getting on parade. Dismissing and falling out. Ground/take up arms, examine arms. Shoulder from the order and viceversa, present from the order and vice-versa. Saluting at the shoulder at the halt and on the march. Short/long trail from the order and vice- versa. Guard mounting, guard of honor, Platoon/Coy Drill.
- Characteristics of rifle (.22/.303/SLR), ammunition, fire power, stripping, assembling, care, cleaning, and sight setting. Loading, cocking, and unloading. The lying position and holding.
- Trigger control and firing a shot. Range Procedure and safety precautions. Aiming and alteration of sight. Theory of groups and snap shooting. Firing at moving targets. Miniature range firing. Characteristics of Carbine and LMG.
- Introduction to map, scales, and conventional signs. Topographical forms and technical terms.
- The grid system. Relief, contours, and gradients. Cardinal points and finding north. Types of bearings and use of service protractor. Prismatic compass and its use. Setting a map, finding north and own position. Map to ground and ground to map. Knots and lashings, Camouflage and concealment, Explosives and IEDs.
- Field defenses obstacles, mines and mine lying. Bridging, waterman ship. Field water supplies, tracks and their construction. Judging distance. Description of ground and indication of landmarks. Recognition and description of target. Observation and concealment. Field signals. Section formations. Fire control orders. Fire and movement. Movement with/without arms. Section battle drill. Types of communication, media, latest trends and developments.

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ASTAT 111	Introductory mathematics (need based)	1(1+0)
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Straight lines: distance and section formula (internal and external division), Change of axes (only origin changed), equation of coordinate axes, Equation of lines parallel to axes, Slope-intercept form of equation of line, slope-point form of equation of line, Slope-intercept form of equation of line, slope-point form of equation of line, Two point form of equation of line, Intercept form of equation of line

Normal form of equation of line, General form of equation of line, point of intersection of two st. lines

General form of equation of line, point of intersection of two st. lines, Angles between two st. lines

Parallel lines, Perpendicular lines, Angle of bisectors between two lines, Area of triangle and quadrilateral, Area of triangle and quadrilateral, Circle: equation of circle whose centre and radius is known Matrices and determinants: definition of matrices, addition Subtraction, multiplication, transpose. Inverse up to 3rd order, Properties of determinants up to 3rd order and their evaluation Properties of determinants up to 3rd order and their evaluation, Equation of circle whose diameters is line joining two points  $(x_1, y_1)$  &  $(x_2, y_2)$ , Tangent and Normal to a given circle at given point (Simple problems), Condition of tangency of a line  $y = mx + c$  to the given circle  $x^2 + y^2 = a^2$ , Differential Calculus

Definition of function, limit and continuity, Definition of function, limit and continuity, Simple problems on limit, simple problems on continuity, differentiation of  $x^n$ ,  $e^x$ ,  $\sin x$  &  $\cos x$  from first principle

Simple problems on limit, simple problems on continuity, differentiation of  $x^n$ ,  $e^x$ ,  $\sin x$  &  $\cos x$  from first principle Derivatives of sum, difference, product and quotient of two functions, differentiation of functions of functions (simple problem based on it), Derivatives of sum, difference, product and quotient of two functions, differentiation of functions of functions (simple problem based on it)

Logarithmic differentiation (simple problem based on it), differentiation by substitution method and simple problems based on it, Differentiation of inverse trigonometric functions. maxima and minima of the functions of the form  $y=f(x)$  (simple problems based on it), Integral calculus : integration of simple functions Integration of product of two functions, integration by substitution method, Definite integral (simple problems based on it), area under simple well-known curves (simple problems based on it)

Definite integral (simple problems based on it) area under simple well-known curves (simple problems based on it)

1. Seed, seed industry and its scope
2. Definition, Characters of good quality seed,
3. Different classes of seed.
4. Seed Act and Seed Act enforcement. Duty and powers of seed inspector, offences and penalties.
5. Seeds Control Order 1983, Seed certification, phases of certification, procedure for seed certification, field inspection.
6. Foundation and certified seed production of important cereals, pulses, oilseeds, fodder and vegetables.
7. Deterioration causes of crop varieties and their control
8. Hybrid seed production technology cereals, pulses, oilseeds and vegetable crops.
9. Seed processing & storage, factor affecting seed storage.
10. Maintenance of genetic purity during seed production
11. Germination test, purity percent and quality parameter
12. Varietal Identification through Grow Out Test and Electrophoresis, Molecular and Biochemical test.
13. Seed multiplication, marketing and linking Public & private seed companies.
14. Visit of agri seed park, seed processing plant and seed certification and seed testing laboratory.
15. Market of Indian Seed Industry
16. Business model for Agri-start-ups



ASEC 122	Post-harvest processing technology- (SEC-IV)	4(0+4)
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### Objective

1. To impart knowledge about post-harvest management and processing of floricultural crops
2. To develop human resource and entrepreneurs in floriculture processing industries.

### Practical

#### Unit-I

Classification of value added floricultural products; Harvest index and harvest techniques of cut and loose flowers; Primary processing of flowers; Layout and establishment of processing unit and Equipments for processing.

#### Unit-II

**Fresh Floral Products:** Practice of flower arrangements and styles (bouquets, baskets, bunch, buttonaire, corsages, floral rangoli, veni, garland, floral strings, wreath, pomander, floral jewellery etc.), ikebana, miniature gardens, terrarium; Selection of containers and accessories for floral products and decorations and flower tinting technique (cut carnations, tuberose etc.).

#### Unit-III

**Dried Floral Products:** Identification and selection of flowers and plant parts suitable for drying ; Raw material procurement, preservation and storage; selection of stages for picking off flowers for drying; techniques in dry flower making – Drying, glycerising, bleaching, dyeing, embedding, pressing; Accessories-- requirements for drying; Designing and arrangements – dried flower arrangements; dry flower baskets, **photo frames, candle holders, lamp shades, book marks, cards**, bouquets, corsages, pot-pourrie, wall hangings, button-holes, greeting cards, wreaths; petal embedded handmade papers; pressed dried flowers etc.; Post-drying management including moisture, pest molds etc. and Dyeing techniques (marigold, chrysanthemum etc.).

#### Unit-IV

**Processed floral products:** Product development - Gulkand, rose oil, rose water, rose cream, rose wine, rose sherbet, Pankhuri, petal jam (rose), Rose syrup, RTS (flower based beverages), floral tea, floral ice creams, floral dyes, fortified feeds, insect repellent etc. and utilization of flower waste; Essential oil extraction techniques (rose, jasmine tuberose etc.); carotenoids, anthocyanins, chlorophyll, betalains pigments extraction methods (marigold, calendula etc.).

#### Unit-V

Packaging standards, marketing and trade; economics of value-added products and Visit to export oriented units/agencies like APEDA, NHB and dry flowers units.

### References:

1. Battacharjee, S. K. and De, L. C. 2005. Post Harvest Technology of Flowers and Ornamentals Plants. Ponteer Publisher, Jaipur, India.
2. Nowak J and Rudnicki R M. 1990. Post harvest handling and storage of cut flowers, florist greens, and potted plants. Timber Press, USA. pp. 210.
3. Prasad S and Kumar U. 2003. Commercial Floriculture. Agrobios Publ., Jodhpur.
4. Prof. V.L. Sheela, 2008. Flower for trade. New India Publishing Agency, Pitampura, New Delhi-110088

5. RandhawaGSandMukhopadhyayA.2001.Floriculture inIndia.AlliedPubl.pp660.
6. ReddyS,JanakiramT,BalajiT,KulkarniSandMisraRL.2007.Hi-TechFloriculture.IndianSocietyofOrnamentalHorticulture,NewDelhi,India.
7. SalunkheK,BhattNRandDesaiBB.2004.PostharvestBiotechnologyofFlowersandOrnamentalPlants.NayaProkash,Kolkata,India.
8. Stanley, J. K. 1998. Post Harvest Physiology of Perishable Plant Products. CBS, New Delhi.
9. Wiils, McGlasson and Graham, J. 2007. Post Harvest- An Introduction to the Physiology and Handling of Fruits, Vegetables and ornamentals. Cab International.

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ASEC 123	Commercial Beekeeping	4(0+4)
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1. Organization of honey bee colony and biological behaviour of different bee species
2. Study of useful bee plants and foraging of bees
3. Essential equipment of bee keeping
4. Factors to be considered for establishing of apiary
5. Artificial rearing of queen
6. Seasonal management of bees
7. Nutritive values, uses and quality control of honey
8. Insect and mite enemies of bees and their management
9. Crop pollination and bee keeping
10. Pesticidal poisoning to honey bees
11. Economic of bee keeping
12. Study of useful bee plants and foraging of bees
13. Acquaintance with bee keeping equipments and handling of bees
14. Artificial queen rearing
15. Multiplication of bee colony
16. Extraction of honey and bee wax
17. Products of bee hive
18. Ripening of honey and its quality control
19. Production of royal jelly
20. Management of insects and pests of bees
21. Startups of bee products with students and SHGs

**Suggested Reading:**

1. Singh, S. 1975. Bee keeping in India. ICAR, New Delhi
2. Sunita, N.D, Guled ,M.B, Mulla S.R and Jagginavar,2003, Beekeeping, UAS Dharwad
3. Mishra, R.C. and Rajesh Gar. 2002. Prospective in Indian Apiculture. Agrobios, Jodhpur.  
Singh, D and Singh, D.P. 2006. A hand book of Beekeeping, Agrobios (India).

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AMD 121*	Personality Development and Human Values	2(1+1)
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*\*Extension and expert from any discipline for Personality Development and Human Values*

### **Objective**

To make students realize their potential strengths, cultivate their inter-personal skills and improve employability.

### **Theory**

#### **Unit-I**

Personality: Meaning, Concept and Definition of personality. Personality traits, various dimensions of personality. Types of personality: Realistic, investigative, artistic, social, enterprising and conventional personality. Self-Exploration and Self Awareness, Philosophy of Co-existence (nature and community)

#### **Unit-II**

Theories of personality of Human – Soul, Body and Quotients (Intelligence, Emotional and Social) The humanistic approach-Maslow's self-actualization theory, Shaping of personality, Determinants of personality, Myers-Briggs Typology Indicator, Locus of control and performance. C

#### **Unit-III**

Goal and Behavior: Goal and Mission of Life, Concept, definition and nature of human behavior. Factors Determining of Human Behavior and their alignment with success/satisfaction in life, Foundations of individual behavior, Models of individual behavior. Type A and Type B Behaviours. Attires and etiquette in organizations. Personality and Organizational Behaviour.

#### **Unit-IV**

Philosophy of Human Conduct, Sensitivity, success, social-emotional quotient and service Concept and definition of Perception; factors affecting perception. and Concept and definitions of attributes; Attribution theory. Learning: Meaning and definition, theories and principles of learning, Decision making, Ethical Aspects of Decision (personal, organizational, social) Decision: Concept and determinants of decision process

#### **Unit-V**

Vison of Life, Values and Ethics, Professional Ethics, Intelligence: types of intelligence, theories of intelligence, measurements of intelligence, factors influencing intelligence, emotional intelligence. Motivation:- definition, types , theories and principles of motivation. Brief concept about Conflict management skill, Negotiation skills, accommodation & adjustment skills,etc.

### **Practical**

Goal setting, Assessment of alignment of Goals with Society and Nation, Resource Mapping for Achieving Goals, Personality analysis, Learning Styles and Strategies, Identification of Fear/Complexes and Ways to move ahead, Motivational needs, Team work and team building, Group Dynamics, Interaction with community to understand our role, Conflict Management, Leadership styles, Case studies on Personality and Organizational Behavior. Preparation of resume for various organizations

### Suggested reading

1. Andrews, Sudhir, 1988, How to Succeed at Interviews. 21<sup>st</sup> (rep.) New Delhi. Tata Mc Graw-Hill.
2. Heller, Robert, 2002, Effective Leadership. Essential Manager Series. DK Publishing.
3. Hindle, Tim, 2003, Reducing Stress. Essential Manager Series. DK Publishing.
4. Lucas, Stephen, 2001, Art of Public Speaking. New Delhi. Tata- Mc-Graw Hill.
5. Mile, D.J, 2004, Power of Positive Thinking. Delhi. Rohan Book Company.
6. Pravesh Kumar, 2005, All about Self-Motivation. New Delhi. Goodwill Publishing House.
7. Smith, B, 2004, Body Language. Delhi: Rohan Book Company.
8. Shaffer, D. R., 2009, Social and Personality Development (6th Edition). Belmont, CA: Wadsworth
9. Human Values and Ethics (2009) – Philosophy of Coexistence: A. Nagraj
10. A Foundation Course in Human Values and Professional Ethics (2010) - R.R. Gaur, R. Sangal, G.P. Bagaria

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AMET 121	Environmental Studies and Disaster Management	3(2+1)
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### Objective

To expose and acquire knowledge on the environment and to gain the state-of-the-art - skill and expertise on management of disasters

### Theory

#### Unit 1

Introduction to Environment - Environmental studies - Definition, scope and importance - Multidisciplinary nature of environmental studies - Segments of Environment - Spheres of Earth - Lithosphere - Hydrosphere - Atmosphere - Different layers of atmosphere. Natural Resources: Classification - Forest resources. Water resources. Mineral resources Food resources. Energy resources. Land resources. Soil resources. Ecosystems - Concept of an ecosystem - Structure and function of an ecosystem - Energy flow in the ecosystem. Types of ecosystem.

#### Unit 2

Biodiversity and its conservation: Introduction, definition, types. Biogeographical classification of India. Importance and Value of biodiversity. Biodiversity hot spots. Threats and Conservation of biodiversity

Environmental Pollution: Definition, cause, effects and control measures of: a. Air pollution. b. Water pollution. c. Soil pollution. d. Marine pollution. e. Noise pollution. f. Thermal pollution h. light pollution.

#### Unit 3

Solid Waste Management: Classification of solid wastes and management methods, Composting, Incineration, Pyrolysis, Biogas production, Causes, effects and control measures of urban and industrial wastes.

Social issues and the Environment: Urban problems related to energy. Water conservation, rain water harvesting, watershed management.

#### Unit 4

Environmental ethics: Issues and possible solutions, climate change, global warming, acid rain, ozone layer depletion, nuclear accidents and holocaust.

Environment Protection Act. Air (Prevention and Control of Pollution) Act. Water (Prevention and control of Pollution) Act. Wildlife Protection Act. Forest Conservation Act.

Human Population and the Environment: Environment and human health: Human Rights, Value Education. Women and Child Welfare.

Role of Information Technology in Environment and human health.

#### Unit 5

Disaster management - Disaster definition - Types - Natural Disasters - Floods, drought, cyclone, earthquakes, landslides, avalanches, volcanic eruptions, Heat and cold waves. Man Made Disasters - Nuclear disasters, chemical disasters, biological disasters, building fire, coal fire, forest fire, oil fire, road accidents, rail accidents, air accidents, sea accidents.

International and National strategy for disaster reduction.

Concept of disaster management, national disaster management framework; financial arrangements; role of NGOs, community-based organizations and media in disaster management.

Central, state, district and local administration in disaster control;

Armed forces in disaster response; Police and other organizations in disaster management.

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### Practical

1. Visit to a local area to document environmental assets river/ forest/ grassland/ hill/ mountain.  
Energy: Biogas production from organic wastes.
2. Visit to wind mill / hydro power / solar power generation units.
3. Biodiversity assessment in farming system.
4. Floral and faunal diversity assessment in polluted and un polluted system.
5. Visit to local polluted site - Urban/Rural/Industrial/Agricultural to study of common plants, insects and birds.
6. Environmental sampling and preservation.
7. Water quality analysis: pH, EC and TDS.
8. Estimation of Acidity, Alkalinity.
9. Estimation of water hardness.
10. Estimation of DO and BOD in water samples.
11. Estimation of COD in water samples.
12. Enumeration of E. coli in water sample.
13. Assessment of Suspended Particulate Matter (SPM).
14. Study of simple ecosystem – Visit to pond/river/hills.
15. Visit to areas affected by natural disaster

### Suggested Readings

1. De. A.K. 2010. Environmental chemistry. Published by New Age International Publishers, New Delhi. ISBN:13-978 81 224 2617 5. 384 pp
2. Dhar Chakrabarti. P.G. 2011. Disaster management - India's risk management policy frameworks and key challenges. Published by Centre for Social Markets (India), Bangalore. 36 pp.
3. ErachBharucha, Text book for Environmental studies. University Grants Commission, New Delhi
4. Parthiban, K.T. Vennila, S. Prasanthrajan, M. Umesh Kanna, S. 2023. Forest, Environment, Biodiversity and Sustainable development. Narendra Publishing House, New Delhi
5. Prasanthrajan M, P.P. Mahendran., 2008. A text book on Ecology and Environmental Science. ISBN 81-8321-104-6. Agrotech Publishing Academy, Udaipur
6. Sharma, P.D. 2009, Ecology and Environment, Rastogi Publications, Meerat, India
7. Tyler Miller and Scot Spoolman. 2009. Living in the Environment (Concepts, Connections, and Solutions). Brooks/cole, Cengage learning publication, Belmont, USA

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ASOIL 121	Soil Fertility Management	3(2+1)
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Objectives:

Theory

Unit-I

History of soil fertility and plant nutrition. criteria of essentiality. Forms of nutrients in soil. Role, deficiency and toxicity symptoms of essential plant nutrients, factors affecting nutrient availability to plants.

Unit-II

Mechanisms of nutrient transport to plants, Chemistry of macro and micronutrients. Soil fertility evaluation, Soil testing. Critical levels of different nutrients in soil. plant analysis, rapid plant tissue tests. Indicator plants.

Unit-III

Introduction and importance of organic manures, properties and methods of preparation of bulky and concentrated manures Green / leaf manuring.

Unit-IV

Chemical fertilizers: classification, composition and properties of major fertilizers, secondary & micronutrient fertilizers. Manufacturing process of major fertilizers. Complex fertilizers, nano fertilizers Fertilizer Storage, Fertilizer Control Order.

Unit-V

Fertilizer recommendation approaches. Integrated nutrient management. Methods of fertilizer recommendations to crops. STCR / RTNM / IPNS. Soil amendments, Factor influencing nutrient use efficiency (NUE), methods of application under rainfed and irrigated conditions.

Practical:

1. Introduction of analytical instruments and their principles, calibration and applications of Colorimetry and flame photometry;
2. Estimation of alkaline hydrolysable N in soils;
3. Estimation of soil extractable P in soils;
4. Estimation of available K in soils;
5. Estimation of exchangeable Ca and Mg in soils;
6. Estimation of soil extractable S in soils;
7. Estimation of DTPA extractable Zn in soils;
8. Estimation of N in plants;
9. Estimation of P in plants;
10. Estimation of K in plants;
11. Estimation of S in plants

Suggested Reading:

Q.V.11

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**Objectives:**

1. To know the history of entomology, classification of insects and their relationship with other arthropods.
2. To study the various morphological characters of class insecta and their importance for classification of insects
3. To get an idea about the different physiological system of insect and their roles in growth and development and communications of insects.
4. To study the characteristics of commonly observed insect orders and their economically important families.

**Theory****Unit 1**

History of Entomology in India.

Major points related to dominance of Insecta in Animal Kingdom.

Classification of phylum Arthropoda upto classes.

Relationship of class Insecta with other classes of Arthropoda.

**Unit 2**

Morphology: Structure and function of insect cuticle and molting.

Body segmentation. Structure of Head, thorax and abdomen.

Structure and modification of insect antennae, mouth parts, legs, Wing venation, Modification and wing coupling apparatus.

Structure of male and female genital organ.

Structure and functions of digestive, circulatory, excretory, respiratory, nervous, secretory (Endocrine) and reproductive system, in insects.

Metamorphosis and diapause in insects. Types of larvae and pupae

Types of reproduction in insects.

Major sensory organs like simple and compound eyes, chemoreceptor.

**Unit 3**

Insect Ecology: Introduction, Environment and its components.

Effect of abiotic factors- temperature, moisture, humidity, rainfall, light, atmospheric Pressure and air currents. Effect of biotic factors - food competition, natural and environmental resistance.

Categories of pests. Concept of IPM, Practices, scope and limitation of IPM.

Classification of insecticides, toxicity of insecticides and formulations of insecticides.

**Unit 4**

Systematics: Taxonomy- importance, history and development and binomial Nomenclature;

Definitions of Biotype, Sub-species, Species, Genus, Family and Order

Classification of class Insecta upto Orders, basic groups of present day insects with special

Emphasis to orders and families of Agriculture importance like Orthoptera: Acrididae,

Tettigonidae, Gryllidae, Gryllotalpidae

**Unit 5**

Dictyoptera: Mantidae, Blattidae, Odonata; Isoptera: Termitidae; Thysanoptera: Thripidae

Hemiptera: Pentatomidae, Coreidae, Cimicidae, Pyrrhocoridae, Lygaeidae, Cicadellidae,

Delphacidae, Aphididae, Coccidae, Lophophidae, Aleurodidae, Pseudococcidae

Neuroptera: Chrysopidae, Lepidoptera: Pieridae; Papilionidae, Noctuidae, Sphingidae, Pyralidae.  
Gelechiidae, Arctiidae, Saturniidae, Bombycidae  
Coleoptera: Coccinellidae, Chrysomelidae, Cerambycidae, Curculionidae, Bruchidae,  
Scarabaeidae  
Hymenoptera: Tenthredinidae, Apidae. Trichogrammatidae, Ichneumonidae, Braconidae,  
Chalcididae;  
Diptera: Cecidomyiidae, Tachinidae, Agromyziidae, Culicidae, Muscidae, Tephritidae

### Practical

1. Methods of collection and preservation of insects including immature stages
2. External features of Grasshopper/Blister beetle
3. Types of insect antennae, mouthparts and legs
4. Wing venation, types of wing and wing coupling apparatus
5. Types of insect larvae and pupae
6. Dissection of digestive system in insects (Grasshopper)
7. Dissection of male and female reproductive, systems in insects (Grasshopper)
8. Study of characters of orders and their families of agricultural importance
9. Orthoptera, Dictyoptera, Odonata, Isoptera, Thysanoptera, Hemiptera, Lepidoptera,
10. Neuroptera. Coleoptera, Hymenoptera, Diptera
11. Insecticides and their formulations
12. Pesticide appliances and their maintenance
13. Sampling techniques for estimation of insect population and damage

### Suggested readings:

1. Imm's General Text book of Entomology- O.W. Richards and R. G. Davies
2. Introduction to the study of Insects- D. J. Borror and DeLong's
3. Fundamentals of Ecology - Eugene. P. Odum & Gray W. Barrett
4. Integrated pest Management Concept and Approaches- G.S. Dhaliwal and Ramesh Arora



AVET 121	Livestock and Poultry Management	2(1+1)
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Objectives:

1. Provide basic knowledge to the students about scientific livestock and poultry rearing practices
2. Entrepreneurship development through Livestock/poultry and Agriculture Integrated farming System

Theory:

Unit 1

Role of livestock in the national economy. Reproduction in farm animals and poultry. Housing principles, space requirements for different species of livestock and poultry.

Unit 2

Management of calves, growing heifers and milch animals. Management of sheep, goat and swine. Incubation, hatching and brooding. Management of growers and layers.

Unit 3

Important Indian and exotic breeds of cattle, buffalo, sheep, goat, swine and poultry.

Unit 4

Improvement of farm animals and poultry. Digestion in livestock and poultry. Classification of feedstuffs. Proximate principles of feed. Nutrients and their functions. Feed ingredients for ration for livestock and poultry. Feed supplements and feed additives. Feeding of livestock and poultry.

Unit 5

Introduction of livestock and poultry diseases. Prevention (including vaccination schedule) and control of important diseases of livestock and poultry.

Practical:

1. External body parts of cattle, buffalo, sheep, goat, swine and poultry.
2. Handling and restraining of livestock.
3. Identification methods of farm animals and poultry.
4. Visit to IDF and IPF to study breeds of livestock and poultry and daily routine farm operations and farm records.
5. Judging of cattle, buffalo and poultry.
6. Culling of livestock and poultry.
7. Planning and layout of housing for different types of livestock.
8. Computation of rations for livestock.
9. Formulation of concentrate mixtures.
10. Clean milk production, milking methods.
11. Hatchery operations, incubation and hatching equipment
12. Management of chicks, growers and layers.
13. Debeaking, dusting and vaccination.
14. Economics of cattle, buffalo, sheep, goat, swine and poultry production

Suggested readings:

1. A Textbook of Animal Husbandry by G. C Banerjee
2. A text Book of Livestock Production management in Tropic by D. N. Verm

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**Objectives:**

1. To get acquainted with the role of different microorganisms in the development of plant disease.
2. To get general concepts and classification of plant diseases
3. To get knowledge of general characteristics of fungi, bacteria, virus, and other microorganisms causing plant diseases.
4. To acquaint the students with reproduction in fungi, and bacteria, causing plant diseases.
5. To get acquainted with various plant disease management principles and practices.

**Theory:****Unit- I**

Introduction to Plant Pathology: Concept of disease in plants; Different terms used in Plant Pathology, History of Plant Pathology with special references to India,

**Unit- II**

Causes of plant disease: Inanimate and animate causes; Classification of plant disease; Parasitism and pathogenesis, Development of disease in plants: Disease Triangle, Disease cycle,

**Unit- III**

Fungi and their morphology, reproduction and classification of fungi, Bacteria: Morphology, reproduction classification of phytopathogenic bacteria,

**Unit- IV**

Other plant pathogens: Mollicutes; Flagellant protozoa; FVB; Green algae and parasitic higher plants; Viruses and viroids, virus transmission,

**Unit- V**

Principles of Plant disease management: Disease management with chemicals, Host resistance, cultural and biological method of Integrated Disease Management (IDM).

**Practical:**

1. Study of the microscope,
2. Acquaintance with laboratory material and equipments,
3. Study of different plant disease symptoms,
4. Microscopic examination of general structure of fungi,
5. Simple staining of bacteria: Direct and indirect staining, Gram staining of bacteria,
6. Microscopic examination of fungal diseased specimen, Microscopic examination of bacterial diseased specimen,
7. Preparation of culture media,
8. Isolation of plant pathogens: Fungi, bacteria and viruses, Purification of plant pathogens,
9. Study on plant disease diagnosis: Koch's Postulates,
10. Characteristics, formulation, methods of application and calculation of fungicides

**Suggested readings:**

1. Pathak, V.N. Essentials of Plant Pathology. Prakash Pub., Jaipur
2. Agrios, G.N. 2010. Plant Pathology. Acad. Press.
3. Kamat, M. N. Introductory Plant Pathology. Prakash Pub, Jaipur
4. Singh R.S. 2008. Plant Diseases. 8th Ed. Oxford & IBH. Pub. Co.
5. Singh R.S. 2013. Introduction to Principles of Plant Pathology. Oxford and IBH Pub. Co.

6. Alexopoulos, Mims and Blackwell. Introductory Mycology
7. Mehrotra RS & Aggarwal A. 2007. Plant Pathology. 7th Ed. Tata McGraw Hill Publ. Co. Ltd.
8. Gibbs A & Harrison B. 1976. Plant Virology - The Principles. Edward Arnold, London
9. Hul R. 2002. Mathews. s Plant Virology. 4th Ed. Academic Press, New York.
10. Verma JP. 1998. The Bacteria. Malhotra Publ. House, New Delhi.
11. Goto M. 1990. Fundamentals of Plant Bacteriology. Academic Press, New York.
12. Dhingra OD & Sinclair JB. 1986. Basic Plant Pathology Methods. CRC Press, London, Tokyo.
13. Nene YL & Thapliyal PN. 1993. Fungicides in Plant Disease Control. 3rd Ed. Oxford & IBH, New Delhi.
14. Vyas SC. 1993. Handbook of Systemic Fungicides. Vols. I-III. Tata McGraw Hill, New Delhi.
15. Rajeev K & Mukherjee RC. 1996. Role of Plant Quarantine in IPM. Aditya Books.
16. Rhower GG. 1991. Regulatory Plant Pest Management. In: Handbook of Pest Management in Agriculture. 2nd Ed. Vol. II. (Ed. David Pimental). CRC Press.

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WAM

NSS II	NSS-II	1(0+1)
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**Objective**

Evoking social consciousness among students through various activities viz., working together, constructive, and creative social work, to be skilful in executing democratic leadership, developing skill in programme, to be able to seek self-employment, reducing gap between educated and uneducated, increasing awareness and desire to help sections of society.

**Practical/ Awareness activities**

- Orientation: history, objectives, principles, symbol, badge; regular programmes under NSS
- Organizational structure of NSS, Code of conduct for NSS volunteers, points to be considered by NSS volunteers' awareness about health.
- NSS programme activities. Concept of regular activities, special camping, day camps, basis of adoption of village/slums, conducting survey, analyzing guiding financial patterns of scheme, youth programmes/ schemes of GOI, coordination with different agencies and maintenance of diary. Understanding youth. Definition, profile categories, issues and challenges of youth; and opportunities for youth who is agent of the social change.
- Community mobilization. Mapping of community stakeholders, designing the message as per problems and their culture; identifying methods of mobilization involving youth/adult partnership. Social harmony and national integration
- Indian history and culture, role of youth in nation building, conflict resolution and peacebuilding. Volunteerism and shramdaan. Indian tradition of volunteerism, its need, importance, motivation, and constraints; shaman as part of volunteerism
- Citizenship, constitution, and human rights. Basic features of constitution of India, fundamental rights and duties, human rights, consumer awareness and rights and rights to information. Family and society. Concept of family, community (PRIs and other community-based organizations) and society

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NCC II	NCC-II	1(0+1)
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1. Arms Drill- Attention, stand at ease, stand easy. Getting on parade. Dismissing and falling out. Ground/take up arms, examine arms.
2. Shoulder from the order and vice-versa, present from the order and vice-versa.
3. Saluting at the shoulder at the halt and on the march. Short/long trail from the order and vice-versa.
4. Guard mounting, guard of honour, Platoon/Coy Drill.
5. Characteristics of rifle (.22/.303/SLR), ammunition, fire power, stripping, assembling, care, cleaning and sight setting.
6. Loading, cocking and unloading. The lying position and holding.
7. Trigger control and firing a shot. Range Procedure and safety precautions. Aiming and alteration of sight.
8. Theory of groups and snap shooting. Firing at moving targets. Miniature range firing.
9. Characteristics of Carbine and LMG.
10. Introduction to map, scales and conventional signs. Topographical forms and technical terms.
11. The grid system. Relief, contours and gradients. Cardinal points and finding north. Types of bearings and use of service protractor.
12. Prismatic compass and its use. Setting a map, finding north and own position. Map to ground and ground to map.
13. Knots and lashings, Camouflage and concealment, Explosives and IEDs.
14. Field defenses obstacles, mines and mine lying. Bridging, watermanship
15. Field water supplies, tracks and their construction.
16. Nuclear, Chemical and Biological Warfare (NCBW)
17. Judging distance. Description of ground and indication of landmarks.
18. Recognition and description of target. Observation and concealment. Field signals. Section formations.
19. Fire control orders. Fire and movement. Movement with/without arms. Section battle drill.
20. Types of communication, media, latest trends and developments.

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इंदिरा गांधी कृषि विश्वविद्यालय  
कृषक नगर, रायपुर 492 012 (छत्तीसगढ़)  
INDIRA GANDHI KRISHI VISHWAVIDYALAYA  
KRISHAK NAGAR, RAIPUR 492 012 (CHHATTISGARH)

Email : registrar-igkv.cg@gov.in regigkv@gmail.com, registraracademic1987@gmail.com  
Website : https://igkv.ac.in Registrar : (Off) 0771-2442537, 2444293 Fax : 0771- 2444293, 2442302, 2443939

F.No. ACM-145/ACD-I/2024/3450

Raipur, Dated 16-07-2024

To,

01. Dr. Kishor Gaikwad, Principal Scientist, National Institute for Plant Biotechnology (NIPB) LBS Centre, Pusa Campus, New Delhi 110012
02. Dr. M.S. Sheshshayee, Professor & Head, Department of Physiology, UAS, GKVK, Bangalore 560065
03. Dr. D. Sudhakar, Professor, Plant Biotechnology, Department of Plant Biotechnology, Centre for Plant Molecular Biology and Biotechnology, TNAU, Coimbatore 641 003
04. Dr. Vivek Kumar Thripathi, I/c Director of Research Services, IGKV, Raipur.
05. Dr. S.S. Sanger, I/c Director of Instructions/Controller of Examination, IGKV, Raipur.
06. Dr. Ajay Verma, I/c Director of Extension Services, IGKV, Raipur.
07. Dr. Sanjay Sharma, I/c Dean Students Welfare, IGKV, Raipur.
08. Dr. G.K. Das, I/c Dean, College of Agriculture, Raipur.
09. Dr. V.K. Pandey, I/c Dean, S.V. College of Agricultural Engineering and Technology and Research Station, Raipur.
10. Dr. Santosh Kumar Sinha, I/c Dean, Rajmohini Devi College of Agriculture and Research Station, Ajirima Farm, Ambikapur.
11. Dr. R.K.S. Tiwari, I/c Dean, Barrister Thakur Chhedilal College of Agriculture and Research Station, Sarkanda Farm, Bilaspur.
12. Dr. Raghunath Singh Netam, I/c Dean, Saheed Gundadur College of Agriculture & Research Station, Kumhrawand Farm, Jagdalpur.
13. Dr. H.C. Nanda, I/c Dean, Sant Kabir College of Agriculture and Research Station, Kabirdham, Kawardha.
14. Dr. N.K. Rastogi, I/c Dean, College of Agriculture and Research Station, Kanker.
15. Dr. Avanindra Kumar Singh, I/c Dean, College of Agriculture and Research Station, Janjgir-Champa.
16. Dr. (Smt.) J.L. Ganguli, I/c Dean, Pt. Shiv Kumar Sastry College of Agriculture and Research Station, Rajnandgaon.
17. Dr. H.L. Sonboir, I/c Dean, D.K.S.C.A. & R.S., Bhatapara, Distt.-Balodabazar-Bhatapara.
18. Dr. Ratna Nashine, I/c Dean, College of Agriculture and Research Station, Narayanpur.
19. Dr. Dinesh Kumar Gupta, I/c Dean, Lt. Dr. Ramchand Singh Dev College of Agriculture and Research Station, Baikunthpur, Distt.-Korea.
20. Dr. Ajeet Kumar Singh, I/c Dean, College of Agriculture and Research Station, Raigarh.
21. Dr. Niranjana Khare, I/c Dean, College of Agriculture & Research Station, Gariyaband.
22. Dr. S. S. Porte, I/c Dean, College of Agriculture & Research Station, Korba.
23. Dr. P.L. Johnson, I/c Dean, College of Agriculture & Research Station, Kurud, Dhamtari.
24. Dr. Anurag, I/c Dean, College of Agriculture & Research Station, Mahasamund.
25. Dr. Om Prakash Parganiha, I/c Dean, College of Agriculture and Research Station, Marra, Block / Tehsil-Patan, Durg.
26. Dr. Alok Tiwari, I/c Dean, College of Agriculture and Research Station, Saja, Bemetra.
27. Dr. R.K.S. Tiwari, I/c Dean, College of Agriculture, Lormi.
28. Dr. A.K. Dave, I/c Dean, College of Food Technology, Raipur.
29. Dr. Avinash Kumar Gupta, I/c Dean, College of Agriculture & Research Station, Chhuikhadan, Rajnandgaon.
30. Dr. Amit Kumar Sinha, I/c Dean, College of Agriculture & Research Station, Jashpur.
31. Dr. Gopal Prasad Painkra, I/c Dean, College of Agriculture & Research Station, Shankargarh, Bairampur Ramanujganj.
32. Dr. N.K. Rastogi, I/c Dean, College of Agriculture & Research Station, Pakhanjur, Kanker.
33. Dr. Pratap Singh Rathiya, I/c Dean, College of Agriculture & Research Station, Pratapur, Surajpur.
34. Dr. Sandeep Bhandarkar, I/c Dean, RSV College of Agriculture and Research Station, Bemetara.
35. Dr. Jitendra Sinha, I/c Dean, B.R.S.M. College of Agricultural Engineering and Technology and Research Station, Pandariaya Road, Mungeli.
36. Dr. M.L. Sharma, HOD, Agriculture Extension, College of Agriculture, Raipur.
37. Dr. Rajendra Lakpale, HOD, Agro-meteorology, College of Agriculture, Raipur.
38. The Dean (CoA, Raipur), HOD, Forestry, College of Agriculture, Raipur.
39. Dr. (Smt.) Arti Guhe, HOD, Plant Physiology, Agricultural Biochemistry, Medicinal and Aromatic Plants, College of Agriculture, Raipur.
40. Dr. Neeraj Shukla, HOD, Vegetable Science, College of Agriculture, Raipur.
41. Dr. A.K. Gauraha, HOD, Department of Agri-Business and Rural Management, College of Agriculture, Raipur.
42. Dr. A.S. Kotasthane, HOD, Plant Pathology, College of Agriculture, Raipur.
43. Dr. Lalit Kumar Shrivastava, HOD, Soil Science & Agricultural Chemistry, College of Agriculture, Raipur.
44. Dr. G.K. Shrivastava, HOD, Agronomy, College of Agriculture, Raipur.
45. Dr. Y.K. Yadu, HOD, Entomology, College of Agriculture, Raipur.
46. Dr. S.B. Veruikar, HOD, Plant Molecular Biology & Bio., College of Agriculture, Raipur.
47. Dr. Ravi R. Saxena, HOD, Agricultural Statistics and Social Science (Language), College of Agriculture, Raipur.
48. Dr. Prabhakar Singh, HOD, Fruit Science, College of Agriculture, Raipur.
49. Dr. Vijay Kumar, HOD, Floriculture and Landscape Architecture, College of Agriculture, Raipur.
50. Dr. Tapas Choudhary, HOD, Agricultural Microbiology, College of Agriculture, Raipur.
51. Dr. Deepak Sharma, HOD, Genetics & Plant Breeding, College of Agriculture, Raipur.
52. Dr. V.K. Choudhary, HOD, Agricultural Economics, College of Agriculture, Raipur.
53. Dr. A.K. Dave, HOD, Farm Machinery and Power Engineering, S.V. College of Agricultural Engineering and Technology and Research Station, Raipur.
54. The Dean (SVCAETRS), HOD, Soil Water Engineering, S.V. College of Agricultural Engineering and Technology and Research Station, Raipur.
55. Dr. A.K. Dave, HOD, Agricultural Processing and Food Engineering, S.V. College of Agricultural Engineering and Technology and RS, Raipur.
56. Dr. S.S. Tuteja, I/c Director Farm (Seed and Farm), IGKV, Raipur.
57. Dr. Ravi R. Saxena, Nodal Officer (IGKVMIS) and Invitee Member for Academic Council, KTRC, IGKV, Raipur.

Subject: -Proceedings of the 145<sup>th</sup> Academic Council Meeting held on 09<sup>th</sup> July 2024.

-:-

Please find enclosed herewith the proceedings of the 145<sup>th</sup> Academic Council Meeting held on 09<sup>th</sup> July 2024 for kind information. Suggestions / corrections if any may please be communicated within 07 days.

Encl :- As above.

  
REGISTRAR

Contd....2...

Endt. F.No. ACM-145/ACD-I/2024/345)

Copy to for information :

PA to Hon'ble Vice-Chancellor, IGKV, Raipur.

Raipur, Dated 15-07-2024

  
REGISTRAR

INDIRA GANDHI KRISHI VISHWAVIDYALAYA  
KRISHAK NAGAR, RAIPUR 492 012 (CHHATTISGARH)

PROCEEDINGS OF THE 145<sup>th</sup> ACADEMIC COUNCIL MEETING HELD  
ON 09<sup>th</sup> July 2024

The 145<sup>th</sup> Meeting of the Academic Council was held on 09<sup>th</sup> July 2024 in the Meeting Hall of Administrative Building, Raipur. The Following members were present :-

01.	Dr. Girish Chandel, Hon'ble Vice-Chancellor, IGKV, Raipur.	Chairman
02.	Dr. Kishor Gaikwad, Principal Scientist, National Institute for Plant Biotechnology (NIPB) LBS Centre, Pusa Campus, New Delhi 110012	Member
03.	Dr. M.S. Sheshshayee, Professor & Head, Department of Physiology, UAS, GKVK, Bangalore 560065	Member
04.	Dr. D. Sudhakar, Professor, Plant Biotechnology, Department of Plant Biotechnology, Centre for Plant Molecular Biology and Biotechnology, TNAU, Coimbatore 641 003	Member
05.	Dr. Vivek Kumar Thripathi, I/c Director of Research Services, IGKV, Raipur.	Member
06.	Dr. S.S. Sanger, I/c Director of Instructions/Controller of Examination, IGKV, Raipur.	Member
07.	Dr. Sanjay Sharma, I/c Dean Students Welfare, IGKV, Raipur.	Member
08.	Dr. G.K. Das, I/c Dean, College of Agriculture, Raipur.	Member
09.	Dr. V.K. Pandey, I/c Dean, S.V. College of Agricultural Engineering and Technology and Research Station, Raipur.	Member
10.	Dr. Santosh Kumar Sinha, I/c Dean, Rajmohini Devi College of Agriculture and Research Station, Ajirima Farm, Ambikapur.	Member
11.	Dr. R.K.S. Tiwari, I/c Dean, Barrister Thakur Chhedilal College of Agriculture and Research Station, Sarkanda Farm, Bilaspur.	Member
12.	Dr. Raghunath Singh Netam, I/c Dean, Saheed Gundadur College of Agriculture & Research Station, Kumhrawand Farm, Jagdalpur.	Member
13.	Dr. (Smt.) J.L. Ganguli, I/c Dean, Pt. Shiv Kumar Sastry College of Agriculture and Research Station, Rajnandgaon.	Member
14.	Dr. H.L. Sonboir, I/c Dean, D.K.S.C.A. & R.S., Bhatapara, Distt.-Balodabazar-Bhatapara.	Member
15.	Dr. Dinesh Kumar Gupta, I/c Dean, Lt. Dr. Ramchand Singh Dev College of Agriculture and Research Station, Baikunthpur, Distt.-Korea.	Member
16.	Dr. Ajeet Kumar Singh, I/c Dean, College of Agriculture and Research Station, Raigarh.	Member
17.	Dr. Niranjana Khare, I/c Dean, College of Agriculture & Research Station, Gariyaband.	Member
18.	Dr. S. S. Porte, I/c Dean, College of Agriculture & Research Station, Korba.	Member
19.	Dr. P.L. Johnson, I/c Dean, College of Agriculture & Research Station, Kurud, Dhamtari.	Member
20.	Dr. Anurag, I/c Dean, College of Agriculture & Research Station, Mahasamund.	Member
21.	Dr. Om Prakash Parganiha, I/c Dean, College of Agriculture and Research Station, Marra, Block / Tehsil-Patan, Durg.	Member
22.	Dr. Alok Tiwari, I/c Dean, College of Agriculture and Research Station, Saja, Bemetra.	Member
23.	Dr. R.K.S. Tiwari, I/c Dean, College of Agriculture, Lormi.	Member
24.	Dr. A.K. Dave, I/c Dean, College of Food Technology, Raipur.	Member
25.	Dr. Avinash Kumar Gupta, I/c Dean, College of Agriculture & Research Station, Chhuikhadan, Rajnandgaon.	Member
26.	Dr. Amit Kumar Sinha, I/c Dean, College of Agriculture & Research Station, Jashpur.	Member
27.	Dr. Gopal Prasad Painkra, I/c Dean, College of Agriculture & Research Station, Shankargarh, Balrampur Ramanujanj.	Member
28.	Dr. Pratap Singh Rathiya, I/c Dean, College of Agriculture & Research Station, Pratapur, Surajpur.	Member
29.	Dr. Sandeep Bhandarkar, I/c Dean, RSV College of Agriculture and Research Station, Bemetara.	Member
30.	Dr. Jitendra Sinha, I/c Dean, B.R.S.M. College of Agricultural Engineering and Technology and Research Station, Pandariaya Road, Mungeli.	Member
31.	Dr. M.L. Sharma, HOD, Agriculture Extension, College of Agriculture, Raipur.	Member
32.	Dr. Rajendra Lakpale, HOD, Agro-meteorology, College of Agriculture, Raipur.	Member
33.	The Dean (CoA, Raipur), HOD, Forestry, College of Agriculture, Raipur.	Member
34.	Dr. (Smt.) Arti Guhe, HOD, Plant Physiology, Agricultural Biochemistry, Medicinal and Aromatic Plants, College of Agriculture, Raipur.	Member
35.	Dr. Neeraj Shukla, HOD, Vegetable Science, College of Agriculture, Raipur.	Member
36.	Dr. A.K. Gauraha, HOD, Department of Agri-Business and Rural Management, College of Agriculture, Raipur.	Member
37.	The HOD, Plant Pathology, College of Agriculture, Raipur.	Member

38.	Dr. G.K. Shrivastava, HOD, Agronomy, College of Agriculture, Raipur.	Member
39.	Dr. Y.K. Yadu, HOD, Entomology, College of Agriculture, Raipur.	Member
40.	Dr. S.B. Verulkar, HOD, Plant Molecular Biology & Bio., College of Agriculture, Raipur.	Member
41.	Dr. Ravi R. Saxena, HOD, Agricultural Statistics and Social Science (language), College of Agriculture, Raipur.	Member
42.	Dr. Vijay Kumar, HOD, Floriculture and Landscape Architecture, College of Agriculture, Raipur.	Member
43.	Dr. Tapas Choudhary, HOD, Agricultural Microbiology, College of Agriculture, Raipur.	Member
44.	The HOD, Genetics & Plant Breeding, College of Agriculture, Raipur.	Member
45.	The HOD, Agricultural Economics, College of Agriculture, Raipur.	Member
46.	Dr. A.K. Dave, HOD, Farm Machinery and Power Engineering, S.V. College of Agricultural Engineering and Technology and Research Station, Raipur.	Member
47.	The Dean (SVCAETRS), HOD, Soil Water Engineering, S.V. College of Agricultural Engineering and Technology and Research Station, Raipur.	Member
48.	Dr. A.K. Dave, HOD, Agricultural Processing and Food Engineering, S.V. College of Agricultural Engineering and Technology and RS, Raipur.	Member
49.	Dr. Ravi R. Saxena, Nodal Officer (IGKVMIS) and Invitee Member for Academic Council, KTRC, IGKV, Raipur.	Invitee Member
50.	Shri G.K. Nirmam, Registrar, IGKV, Raipur.	Member/ Secretary

At the outset of the meeting Deputy Registrar (Academic) welcome to Hon'ble Vice-Chancellor as well as members of the council. Hon'ble Vice-Chancellor asked to Deputy Registrar (Academic) for starting the meeting and it was started with agenda of the meeting.

**ITEM NO. 145.01**

**SUBJECT :- CONFIRMATION OF THE MINUTES OF THE 144<sup>TH</sup> ACADEMIC COUNCIL MEETING HELD ON 29<sup>TH</sup> FEBRUARY 2024.**

The 144<sup>th</sup> Meeting of the Academic Council was held on 29<sup>th</sup> February 2024. The proceedings of the Meeting were sent to the members of the Council vide letter F.No. ACM-144/ACD-I/2024/9989-9990 Dated 22-03-2024.

No comments/suggestions were received from any member. Therefore, proceedings may be confirmed.

**ITEM NO. 145.02**

**SUBJECT :- ACTION TAKEN BY UNIVERSITY ON THE DECISIONS TAKEN DURING 144<sup>TH</sup> ACADEMIC COUNCIL MEETING HELD ON 29<sup>TH</sup> FEBRUARY 2024.**

Actions taken by the Vishwavidyalaya on the decisions taken during the 144<sup>th</sup> Academic Council Meeting held on 29<sup>th</sup> February 2024 were reported.

The members of the Academic council expressed their satisfaction on the actions taken by Vishwavidyalaya.

**ITEM NO. 145.03**

**SUBJECT :- IMPLEMENTATION OF NEP 2020 AT UG LEVEL - RULES AND REGULATION - REGARDING.**

The Academic Council in its 145<sup>th</sup> meeting held on 09<sup>th</sup> July 2024, the proposal was discussed in length and it was recommended with incorporation of suggestions to put up in next meeting of Board of Management for its approval (Enclosure - 145.03).

**ITEM NO. 145.04**

**SUBJECT :- IMPLEMENTATION OF NEP 2020 AT UG LEVEL – COURSE CURRICULUM OF UNDER GRADUATE FOR B.Sc. (Hons.) AGRICULTURE, 1<sup>ST</sup> YEAR ONLY - REGARDING.**

The Academic Council in its 145<sup>th</sup> meeting held on 09<sup>th</sup> July 2024, the proposal was discussed in length and it was recommended with incorporation of suggestions to put up in next meeting of Board of Management for its approval (Enclosure – 145.04).

**ITEM NO. 145.05**

**SUBJECT :- RESTRUCTURING UNDER GRADUATE AGRICULTURAL ENGINEERING PROGRAMME TO IMPLEMENT NEP-2020 - REGARDING.**

The Academic Council in its 145<sup>th</sup> meeting held on 09<sup>th</sup> July 2024, the proposal was discussed in length and it was recommended with incorporation of suggestions to put up in next meeting of Board of Management for its approval (Enclosure – 145.05).

**ITEM NO. 145.06**

**SUBJECT :- PERMISSION FOR APPROVAL OF CURRICULUM FOR B.TECH. (FOOD TECHNOLOGY) AS PER NEP 2020 - REGARDING.**

The Academic Council in its 145<sup>th</sup> meeting held on 09<sup>th</sup> July 2024, the proposal was discussed in length and it was recommended with incorporation of suggestions to put up in next meeting of Board of Management for its approval (Enclosure – 145.06).

**ITEM NO. 145.07**

**SUBJECT :- इंदिरा गांधी कृषि विश्वविद्यालय, रायपुर , शैक्षणिक सत्र 2024–25 में Open and Distance Learning Programmes and Online Programmes नवीन कोर्स चलाये जाने बाबत ।**

The Academic Council in its 145<sup>th</sup> meeting held on 09<sup>th</sup> July 2024, the proposal was discussed in length and it was recommended to take a minimum a 10 credit of online courses, which will comprise of 01 hour more courses, as a requirement for the UG programme. Such courses can be taken preferably during Third and Fourth year of UG degree programme. The University will keep record of such courses registered and completed by each student and will indicate the title of the (successfully completed) course and final transcript the student. Such online courses can be taken from NPTEL, moocKIT, edX, Coursera, swayam or any other portal of ICAR / UGC / SAUs, with the permission of the University (IGKV, Raipur) with incorporation of suggestions to put up in next meeting of Board of Management for its approval.

**ITEM NO. 145.08**

**SUBJECT :-** शैक्षणिक सत्र 2024-25 हेतु छत्तीसगढ़ व्यावसायिक परीक्षा मंडल, रायपुर द्वारा आयोजित पी.ए.टी. एवं पी.ई.टी. परीक्षा प्रवेश नियम 2024 अनुमोदन के संबंध में।

The Academic Council in its 145<sup>th</sup> meeting held on 09<sup>th</sup> July 2024, the proposal was discussed and it was recommended to put up in next meeting of Board of Management for its approval.

**ITEM NO. 145.09**

**SUBJECT :-** स्नातक पाठ्यक्रम बी.एस-सी. कृषि (आनर्स) प्रथम वर्ष शैक्षणिक सत्र 2024-25 में प्रवेश हेतु ऑनलाइन पंजीयन एवं काउंसिलिंग के लिए दिशा निर्देश का अनुमोदन बाबत।

The Academic Council in its 145<sup>th</sup> meeting held on 09<sup>th</sup> July 2024, the proposal was discussed and it was recommended to put up in next meeting of Board of Management for its approval. It was also decided by the Council that on the basis of the recommended proposal Online Registration and Concealing for academic session 2024-25 shall be done.

**ITEM NO. 145.10**

**SUBJECT :-** स्नातक पाठ्यक्रम बी.टेक. (कृषि अभियांत्रिकी) तथा बी.टेक. (फूड टेक्नालॉजी) प्रथम वर्ष शैक्षणिक सत्र 2024-25 में प्रवेश हेतु ऑनलाइन पंजीयन एवं काउंसिलिंग के लिए दिशा निर्देश का अनुमोदन बाबत।

The Academic Council in its 145<sup>th</sup> meeting held on 09<sup>th</sup> July 2024, the proposal was discussed and it was recommended to put up in next meeting of Board of Management for its approval. It was also decided by the Council that on the basis of the recommended proposal Online Registration and Concealing for academic session 2024-25 shall be done.

**ITEM NO. 145.11**

**SUBJECT :-** इंदिरा गांधी कृषि विश्वविद्यालय, रायपुर में संचालित स्नातक पाठ्यक्रम में अध्ययनरत विद्यार्थियों के स्थानांतरण हेतु नवीन दिशा निर्देश बाबत।

The Academic Council in its 145<sup>th</sup> meeting held on 09<sup>th</sup> July 2024, the proposal was discussed in length and the Council has given following recommendations :-

1. The student who are going to admit in UG courses from the academic session 2024-25 has to submit a bond (Affidavit) for not applying for transfer during First Year and Second Year.
2. The transfer of the students shall be done in Third Year of UG course to desired college on the basis of vacant seats available (college) as per the notified seats (admission capacity) of that college. However, it shall not be increased more than 10 percent of that college notified seats (admission capacity).

**ITEM NO. 145.12**

**SUBJECT :-** इंदिरा गांधी कृषि विश्वविद्यालय, रायपुर के अंतर्गत संचालित शासकीय महाविद्यालयों के शैक्षणिक सत्र 2024-25 में स्नातक पाठ्यक्रमों के सीटों की संख्या का अनुमोदन करने के संबंध में।

विद्या परिषद की दिनांक 09 जुलाई 2024 को संपन्न हुई 145वीं बैठक में इंदिरा गांधी कृषि विश्वविद्यालय, रायपुर के अधीन संचालित शासकीय महाविद्यालयों के स्नातक पाठ्यक्रम बी.एस-सी. कृषि (आनर्स), बी.टेक. (कृषि अभियांत्रिकी) तथा बी.टेक. (फूड टेक्नालॉजी) प्रथम वर्ष शैक्षणिक सत्र 2024-25 में प्रवेश हेतु सीटों के श्रेणीवार वर्गीकृत तालिका का अनुमोदन करने की अनुशंसा की। उक्त अनुशंसित सीटों पर शैक्षणिक सत्र 2024-25 के काउंसिलिंग आदि के माध्यम से प्रवेश की कार्यवाही की जावे।

विद्या परिषद की अनुशंसाओं को यथा रूप प्रबंध मंडल की आगामी बैठक में कार्योत्तर अनुमोदन (Ex-post facto approval) प्राप्त करने हेतु प्रस्तुत किये जाने का निर्णय लिया गया।

**ITEM NO. 145.13**

**SUBJECT :-** इंदिरा गांधी कृषि विश्वविद्यालय, रायपुर के अंतर्गत संचालित निजी महाविद्यालयों के शैक्षणिक सत्र 2024-25 में स्नातक पाठ्यक्रमों के सीटों की संख्या का अनुमोदन करने के संबंध में।

विद्या परिषद की दिनांक 09 जुलाई 2024 को संपन्न हुई 145वीं बैठक में इंदिरा गांधी कृषि विश्वविद्यालय, रायपुर के अधीन संचालित निजी महाविद्यालयों के स्नातक पाठ्यक्रम बी.एस-सी. कृषि (आनर्स) तथा बी.टेक. (कृषि अभियांत्रिकी) प्रथम वर्ष शैक्षणिक सत्र 2024-25 में प्रवेश हेतु सीटों के श्रेणीवार वर्गीकृत तालिका का अनुमोदन करने की अनुशंसा की। उक्त अनुशंसित सीटों पर शैक्षणिक सत्र 2024-25 के काउंसिलिंग आदि के माध्यम से प्रवेश की कार्यवाही की जावे।

विद्या परिषद की अनुशंसाओं को यथा रूप प्रबंध मंडल की आगामी बैठक में कार्योत्तर अनुमोदन (Ex-post facto approval) प्राप्त करने हेतु प्रस्तुत किये जाने का निर्णय लिया गया।

**ITEM NO. 145.14**

**SUBJECT :- PROPOSAL FOR AMENDMENT IN THE GUIDELINE FOR EDUCATION TOUR FOR UG PROGRAMME – REGARDING.**

The Academic Council in its 145<sup>th</sup> meeting held on 09<sup>th</sup> July 2024, the proposal was discussed in length and the Council has given its approval with minor modifications.

**ITEM NO. 145.15**

**SUBJECT :- PROPOSAL FOR DISPLAY OF INTERNAL MARKS IN THE SRC AS WELL AS BEFORE DECLARATION OF THE RESULT – REGARDING.**

The Academic Council in its 145<sup>th</sup> meeting held on 09<sup>th</sup> July 2024, discussed at length and the Council deferred the proposal. However, it was asked that a circular has to be released by the University with the subject to show these internal marks where each course teacher has to display the internal mark to students after its evaluation.

**ITEM NO. 145.16**

**SUBJECT :-** छत्तीसगढ़ के समस्त विश्वविद्यालयों-महाविद्यालयों में रोवर-रेंजर (स्काउट-गाइड) दल का पंजीयन एवं संचालन करने बाबत।

The Academic Council in its 145<sup>th</sup> meeting held on 09<sup>th</sup> July 2024, the proposal was discussed and it was recommended to put up in next meeting of Board of Management for its approval.

The Council suggested to inform about the programme (रोवर-रेंजर (स्काउट-गाइड)) during "Deeksharambh Session" of newly admitted students from academic session 2024-25 by Dean / Principal of the College and the fee for the same only be collated from these students who is going to be enrolled for the programme.

**ITEM NO. 145.17**

**SUBJECT :-** PG-CET REGULATION 2024 AND NOTIFICATION OF PG ADMISSION - REGARDING.

The Academic Council in its 145<sup>th</sup> meeting held on 09<sup>th</sup> July 2024, the proposal was discussed and it was recommended to put up in next meeting of Board of Management for its approval.

**ITEM NO. 145.18**

**SUBJECT :-** Ph.D.-CET REGULATION 2024 AND NOTIFICATION OF Ph.D. ADMISSION - REGARDING.

The Academic Council in its 145<sup>th</sup> meeting held on 09<sup>th</sup> July 2024, the proposal was discussed and it was recommended to put up in next meeting of Board of Management for its approval.

**ITEM NO. 145.19**

**SUBJECT :-** NUMBER OF BASE SEATS ALONG WITH SEAT MATRIX IN PG PROGRAMME FOR ACADEMIC SESSION 2024-25 - REGARDING.

विद्या परिषद की दिनांक 09 जुलाई 2024 को संपन्न हुई 145वीं बैठक में इंदिरा गांधी कृषि विश्वविद्यालय, रायपुर के अधीन संचालित शासकीय महाविद्यालयों के स्नातकोत्तर पाठ्यक्रम के प्रथम वर्ष शैक्षणिक सत्र 2024-25 में प्रवेश हेतु सीटों के श्रेणीवार वर्गीकृत तालिका का अनुमोदन करने की अनुशंसा की। इसके साथ-साथ परिषद ने कृषि महाविद्यालय, कवर्धा में इस सत्र की सीटों को शून्य घोषित किया गया। उक्त अनुशंसित सीटों पर शैक्षणिक सत्र 2024-25 के काउंसिलिंग आदि के माध्यम से प्रवेश की कार्यवाही की जावे (Enclosure - 145.19)।

विद्या परिषद की अनुशंसाओं को यथा रूप प्रबंध मंडल की आगामी बैठक में कार्योत्तर अनुमोदन (Ex-post facto approval) प्राप्त करने हेतु प्रस्तुत किये जाने का निर्णय लिया गया।

**ITEM NO. 145.20**

**SUBJECT :- CHANGE IN NOMENCLATURE OF DEPARTMENT OF FLORICULTURE AND LANDSCAPE ARCHITECTURE FOR PG AND Ph.D. DEGREE- REGARDING.**

The Academic Council in its 145<sup>th</sup> meeting held on 09<sup>th</sup> July 2024, the proposal was discussed and it was recommended the following to put up in next meeting of Board of Management for its approval :-

वर्तमान में प्रचलित नाम				प्रस्तावित नाम				
क्र.	विभाग का नाम अंग्रेजी	उपाधि में नाम अंग्रेजी	विभाग का नाम हिन्दी	उपाधि में नाम हिन्दी	विभाग का नाम अंग्रेजी	उपाधि में नाम अंग्रेजी	विभाग का नाम हिन्दी	उपाधि में नाम हिन्दी
उद्यानिकी संकाय								
1.	Department of Floriculture and Landscape Architecture	Floriculture and Landscape	पुष्प विज्ञान एवं भूदृश्य वास्तुकला विभाग	पुष्प विज्ञान एवं भूदृश्य	Department of Floriculture and Landscaping	Floriculture and Landscaping	पुष्प विज्ञान एवं भूदृश्य विभाग	पुष्प विज्ञान एवं भूदृश्य

**ITEM NO. 145.21**

**SUBJECT :- CONSIDERED ONE CREDIT OF SAKHA RAM SHORI IN III SEMESTER 2023-24 AS SPECIAL CASE - REGARDING.**

The Academic Council in its 145<sup>th</sup> meeting held on 09<sup>th</sup> July 2024, the proposal was discussed and the Council has given its approval as special case.

**ITEM NO. 145.22**

**SUBJECT :- एम.एस-सी. (कृषि) पादप रोग पाठ्यक्रम की छात्रा नीलम की अंतिम अधिसूचना जारी करने के संबंध में।**

The Academic Council in its 145<sup>th</sup> meeting held on 09<sup>th</sup> July 2024, the proposal was discussed and the Council has given its approval as special case and decided its notification date shall be given in the Provisional Certificate. (instead of the viva voce date of PG Student NEELAM -ID 20200325 in Provisional Certificate)

**ITEM NO. 145.23**

**SUBJECT :- CHANGE IN QUESTION PAPER PATTERN FOR UG, PG AND Ph.D. FROM THE SESSION 2024-25 - REGARDING.**

The Academic Council in its 145<sup>th</sup> meeting held on 09<sup>th</sup> July 2024, the proposal was discussed and it was recommended to put up in next meeting of Board of Management for its approval.

**ITEM NO. 145.24**

**SUBJECT :- DEVELOPMENT OF SOFTWARE FOR AUTOMATIC QUESTION PAPER GENERATION FOR UG, PG AND Ph.D. - REGARDING.**

The Academic Council in its 145<sup>th</sup> meeting held on 09<sup>th</sup> July 2024, the proposal was discussed and it was recommended to prepare a committee for further examination in the light of reducing errors of repetition of same questions in the paper(s).

The Council also asked on the matter before to adopt such proposals, a huge question bank has to be generated and specific rules and regulations shall also be prepared for smooth conduction of the examination.

For this purpose a committee has to be formed by the Director of Instructions on the basis of recommendation by the committee a fresh proposal has to be put-up.

**ITEM NO. 145.25**

**SUBJECT :- INTRODUCTION OF JOINT UG PROGRAM (3+1) / HYBRID PROGRAMS, INTEGRATED UG PLUS MASTER'S (3+1+1), DUAL MRes (MASTER OF RESEARCH) AND DUAL Ph.D. DEGREE PROGRAM IN COLLABORATION WITH WESTERN SYDNEY UNIVERSITY (WSU), AUSTRALIA AND IGKV, RAIPUR (CHHATTISGARH) INDIA - REGARDING.**

The Academic Council in its 145<sup>th</sup> meeting held on 09<sup>th</sup> July 2024, the proposal was discussed and it was recommended to constitute a committee to examine the same in the light of IGKV act and statute and put its report for its further approval.

**ITEM NO. 145.26**

**SUBJECT :- GUIDELINES FOR STUDENTS / STAFF GOING ABROAD FROM INDIA AND OVERSEAS STUDENTS / STAFF COMING TO INDIA FOR INTERNATIONAL STUDY - REGARDING.**

The Academic Council in its 145<sup>th</sup> meeting held on 09<sup>th</sup> July 2024, the proposal was discussed and it was recommended to constitute a committee to examine the same in the light of IGKV act and statute and put its report for its further approval.

**ITEM NO. 145.27**

**SUBJECT :- सत्र 2024-25 में पी.एच-डी.(कृषि) आनुवंशिकी एवं पादप प्रजनन के छात्र नीरज कुमार (विश्वविद्यालय नामांकन संख्या 20222927) के अध्ययन के दौरान देश से बाहर के संस्थान (IRRI, Manila, Philippines) में थीसिस अनुसंधान हेतु अनुलग्न किये जाने के सम्बन्ध में प्रशासनिक अनुमोदन प्रदाय करने के सम्बन्ध में।**

The Academic Council in its 145<sup>th</sup> meeting held on 09<sup>th</sup> July 2024, the proposal was discussed and it was recommended to put up in next meeting of Board of Management for its approval.

**ITEM NO. 145.28.**

**SUBJECT :-** Dr. OFOSU KIRPAL AGYEMANG, ASSISTANT RESEARCH SCIENTIST, CSIR, KUMASI, GHANA AS VISITING SCIENTIST TO WORK ON "BREEDING MODERNIZATION" UNDER THE ABI-TRANSFORM CAPSHA PROGRAM AT IGKV, RAIPUR.

The Academic Council in its 145<sup>th</sup> meeting held on 09<sup>th</sup> July 2024, the proposal was discussed and it was recommended to put up in next meeting of Board of Management for its information.

**ITEM NO. 145.29**

**SUBJECT :-** SUBMISSION OF DRAFT OF MOUs/MOA RECEIVED FROM VARIOUS ORGANIZATIONS FOR SIGNATURE BY THE VISHWAVIDYALAYA - REGARDING.

The Academic Council in its 145<sup>th</sup> meeting held on 09<sup>th</sup> July 2024, the proposal was discussed and the Council expressed agreement principally on the same. However, it was recommended to examine the proposal thoroughly in the light of IGKV act and statute and put-up it for its further approval to Hon'ble Vice-Chancellor asked the Director of Institutions to get its legal vetting also.

**ITEM NO. 145.30**

**SUBJECT :-** एम.एस-सी. (कृषि) मृदा विज्ञान एवं कृषि रसायन पाठ्यक्रम की छात्रा चिलुकुरी श्रीवल्ली, विश्वविद्यालय नामांकन संख्या 20210492 को मूल उपाधि प्रमाण पत्र प्रदान करने बाबत।

The Academic Council in its 145<sup>th</sup> meeting held on 09<sup>th</sup> July 2024, the proposal was discussed the Council expressed pleasure for such work which promotes higher studies in International Institutes and it was recommended to put up in next meeting of Board of Management for its approval.

माननीय अध्यक्ष महोदय की अनुमति से प्रस्तुत अन्य विषय

**ITEM NO. 145.31**

**SUBJECT :-** विश्वविद्यालय के अधीन अनुसंधान केन्द्रों में राज्य शासन से प्राप्त पदसंरचना अन्तर्गत वैज्ञानिक के रिक्त पदों पर संविदा के आधार पर नियुक्ति के संबंध में।

The Academic Council in its 145<sup>th</sup> meeting held on 09<sup>th</sup> July 2024, the proposal was put up by the Director of Research Services, it was discussed in length and the Council agreed upon the same principally and suggested to put up detailed proposal with the permission of the Chairman for further approval.

ITEM NO. 145.32

SUBJECT :- पी-एच.डी. अध्ययन अवकाश नियम (अधिसूचना पृ.क्रमांक 7805 दिनांक 24-03-2022)  
में आंशिक संशोधन करने बाबत।

The Academic Council in its 145<sup>th</sup> meeting held on 09<sup>th</sup> July 2024, the proposal was put up by the Director of Research Services, it was discussed in length and the Council agreed upon the same principally and suggested to put up detailed proposal with the permission of the Chairman for further approval.

The meeting was concluded with thanks to the Chairman and the members attended this meeting physically after a long period of time Deputy Registrar (Academic).

  
REGISTRAR