

**B.Sc (Hons.)
CO-OPERATION AND BANKING**

**Course Syllabi
2018**



**KERALA AGRICULTURAL UNIVERSITY
COLLEGE OF CO-OPERATION, BANKING AND MANAGEMENT
VELLANIKKARA, KAU.P.O., THRISSUR - 680 656**

DISTRIBUTION OF COURSES – DISCIPLINE-WISE

1. Co-operative Management			
Sl. No.	Catalogue No.	Name of Course	Credit
1.	Cmgt 1101	Theory and Principles of Co-operation	2+0
2.	Cmgt 1203	International Agri-Business Co-operative Models	2+0
3.	Cmgt 2104	Co-operative Banking for Agri-Business	1+1
4.	Cmgt 2205	Management of Agri-Business Co-operatives in India	1+1
5.	Cmgt 3107	Co-operative Legal System	2+1
6.	Cmgt 3108	Accounting & Auditing of Agri-Business Co-operatives	1+1
7.	Cmgt 3210	Management of Producer Organizations	1+1
8.	Cmgt 3211	Human Resource Management for Agricultural Co-operatives	1+1
Total credit hours			11+6=17
2. Development Economics			
Sl. No.	Catalogue No.	Name of Course	Credit
1.	Econ 1101	Micro Economics for Agri-Business	2+1
2.	Econ 1202	Macro Economics for Agri-Business	2+0
3.	Econ 2103	Farm Management and Resource Economics	1+1
4.	Econ 2204	Economics of Development & Planning	2+0
5.	Econ 3106	Agricultural Trade and Export Management	2+0
6.	Econ 3107	Agri-Business Project Management	1+1
7.	Econ 3209	Basic Econometrics	1+1
8.	Econ 3210	Agricultural Price Analysis	1+1
Total credit hours			12+5=17
3. Rural Banking and Finance Management			
Sl. No.	Catalogue No.	Name of Course	Credit
1.	Bank 1101	Fundamentals of Banking	2+0
2.	Bank 1202	Recent Trends in Indian Banking	1+1
3.	Bank 1203	Banking Law and Practice	1+1

4.	Bank 2104	Financial Markets	1+0
5.	Bank 2105	Agriculture & Micro Finance	2+1
6.	Bank 2206	International Finance Management	1+1
7.	Bank 3108	Financial Management	1+2
8.	Bank 3210	Investment Analysis & Portfolio Management	1+1
Total credit hours			10+7=17
4. Rural Marketing Management			
Sl. No.	Catalogue No.	Name of Course	Credit
1.	Mmgt 1101	Marketing Management	1+1
2.	Mmgt 1202	Fundamentals of Financial Accounting	1+2
3.	Mmgt 2103	Agricultural & Rural Marketing Management	2+1
4.	Mmgt 2204	E-Commerce for Agri-Business	1+1
5.	Mmgt 3107	Consumer Behaviour & Market Research	2+1
6.	Mmgt 3209	Agricultural Marketing Legislations	2+0
7.	Mmgt 3210	Marketing Information System & Commodity Derivatives	1+1
Total credit hours			10+7=17
5. Agriculture Sciences			
Sl. No.	Catalogue No.	Name of Course	Credit
Agronomy			
1.	Agro 1101	Fundamentals of Agronomy	2+1
2.	Agro 1202	Crop Production Technology	1+1
Soil Science and Agricultural Chemistry			
3.	Ssac 1101	Fundamentals of Soil Science	2+1
4.	Ssac 2202	Manures, Fertilisers & Soil Fertility Management	2+1
Agricultural Entomology			
5.	Ento 2101	Fundamentals of Entomology	2+1
6.	Ento 2202	Pests of Crops & their Management	2+1
Plant Pathology			
7.	Path 1201	Fundamentals of Plant Pathology	2+1
8.	Path 2202	Diseases of Crops & their Management	2+1

Horticulture			
9.	Hort 1101	Fundamentals of Horticulture	1+1
10.	Hort 3102	Standardization, Grading and Quality Control in Crop Produce	1+1
Agricultural Extension			
11.	Extn 1202	Fundamentals of Agricultural Extension Education & Rural Development	2+1
12.	Extn 3203	Rural Sociology and Educational Psychology	2+0
Microbiology			
13.	Micr 3201	Agricultural Micro Biology	2+1
Total credit hours			23+12=35
6. Agri - allied Sciences			
1.	Engg 2101	Farm Machinery and Hi-Tech Agriculture	2+1
2.	Anhs 2101	Livestock and Poultry Management	2+1
3.	Fish 2101	Aquaculture and Fish Processing Technology	2+1
4.	Fors 2201	Introduction to Forestry	1+0
Total credit hours			7+3=10
7. Quantitative Techniques			
Sl. No.	Catalogue No.	Name of Course	Credit
1.	Agst 1202	Statistical Methods	2+1
2.	Agst 3103	Quantitative Techniques for Agri-Business	2+1
Total credit hours			4+2=6
8. Computer Applications			
Sl. No.	Catalogue No.	Name of Course	Credit
1.	Comp 2101	Computer Applications for Agri-Business	1+1
2.	Comp 2202	Agri-Informatics	1+1
Total credit hours			2+2=4

9. Elective Courses (Any Three Courses)				
1.	IV SEMESTER (Any One Elective)			2+1
	Cmgt 2206	Agri-Business Management		
	Bank 2207	Financial System & Services		
	Mmgt 2206	Value chain in Agriculture		
	Econ 2205	Methodology for Project studies		
2.	V SEMESTER (Any One Elective)			2+1
	Cmgt 3109	Social Entrepreneurship		
	Bank 3109	Digital Banking		
	Mmgt 3108	Retail Management		
	Econ 3108	WTO & Indian Agriculture		
3.	VI SEMESTER (Any One Elective)			2+1
	Cmgt 3212	Corporate Social Responsibility		
	Bank 3211	Financial & Cost Analysis		
	Mmgt 3211	International Agri-Business Marketing		
	Econ 3211	Gender Economics		
Total credit hours				6+3=9
10. Common Courses				
1.	Mmgt 2205	Entrepreneurship Development		1+1
2.	Engl 1101	Comprehension & Common Skills in English		1+1
3.	Ssac 3203	Environmental Studies & Disaster Management		1+1
Total credit hours				3+3=6
11. Rural Work Experience in Co-operation & Banking				
Sl. No.	Catalogue No.	Name of Course	No. of Weeks	Credit
1.	Rawe 4101	Orientation Programme	1	0+20
		Placement in the Assistant Registrar of Cooperative Societies and the Assistant Director of Cooperative Audit(two weeks each)	4	
		Village Stay	1	
		Project Work	14	
		Total Weeks	20	
Total credit hours				0+20=20

12. Experiential Learning in Co-operation & Banking (Select any Two Courses)				
Sl. No.	Catalogue No.	Name of Course	No. of Weeks	Credit
1.	Elcb 4201	Preparation of Business Plan	10	0+20
2.	Elcb 4202	Rural Development Consultancy Services	10	
3.	Elcb 4203	KAU Technology Diffusion Strategies	10	
4.	Elcb 4204	Market Intelligence Practices	10	
5.	Elcb 4205	Production / Processing / Procurement and Marketing of agribusiness products.	10	
6.	Elcb 4206	Web Based Promotional Content Development for Agripreneurs	10	
7.	Elcb 4207	Design, Development & Implementation of Financial Literacy Programmes for Farmers & Women	10	
8.	Elcb 4208	Agri & Agri-Business Finance Consultancy Services	10	
Total credit hours				0+20=20
13. Non - gradial Courses				
Sl. No	Catalogue No	Name of Course	Credit	
1.	Extn 1101	Human Values and Ethics	1+0	
2.	Devp 1201	Physical Education and Yoga Practices	0+1	
3.	Nsnc 1201	NSS	0+1	
4.	Stur 3101	All India Study Tour	0+1	
5.	Stur 4102	All Kerala Study Tour	0+1	
Total credit hours				1+4=5
14. Remedial Courses(Non-graded)				
1.	Cmgt 1102	Principles of Management	2+0	
2.	Agst 1101	Mathematics for Agri-Business	1+1	
	Biol 1101	Fundamentals of Biology		
Total credit hours				3+1=4

CURRICULUM

B.Sc. (Hons.) C&B DEGREE PROGRAMME (SEMESTER SYSTEM)

Distribution of Credits (subject-wise)

Sl. No.	Distribution of Credits (subject-wise)	Credit Hours
1.	Co-operative Management	11+6 =17
2.	Development Economics	12+5 =17
3.	Rural Banking and Finance Management	10+7 =17
4.	Rural Marketing Management	10+7=17
5.	Agriculture Sciences	23+12 =35
6.	Agri – allied Sciences	7+3=10
7.	Quantitative Techniques	4+2 =6
8.	Computer Applications	2+2=4
9.	Electives	6+3 =9
10.	Common Courses	3+3 =6
11.	Rural Work Experience in CB&M	0+20=20
12.	Experiential Learning	0+20=20
Total		88+90=178
13.	Non – gradial Courses	1+4=5
14.	Remedial Courses (Non – graded)	3+1=4
Grand Total		92+95 = 187

Distribution of Credit – Semester – wise

Semester	Years				Physical Edn. (NG)	Study Tour (NG)	Human Values & Ethics (NG)	NSS (NG)	Remedial Courses	Total
	I	II	III	IV						
I	19	25	23	20		1	1		4	93
II	22	25	24	20	1	1		1		94
Total	41	50	47	40	1	2	1	1	4	187*

*including 4+5 Non-graded courses

DISTRIBUTION OF COURSES – SEMESTER-WISE

SEMESTER I				
Sl. No.	Catalogue No.	Name of Course	Credit	Page Number
1.	Cmgt 1101	Theory and Principles of Co-operation	2+0	1
2.	Econ 1101	Micro Economics for Agri-Business	2+1	6
3.	Bank 1101	Fundamentals of Banking	2+0	12
4.	Mmgt 1101	Marketing Management	1+1	17
5.	Agro 1101	Fundamentals of Agronomy	2+1	22
6.	Ssac 1101	Fundamentals of Soil Science	2+1	23
7.	Hort 1101	Fundamentals of Horticulture	1+1	27
8.	Engl 1101	Comprehension & Common Skills in English	1+1	46
9.	Extn 1101	Human Values and Ethics (Non-graded)	1+0	51
10.	Cmgt 1102	Principles of Management	2+0	53
11.	Agst 1101	Mathematics for Agri-Business	1+1	54
	Biol 1101	or Fundamentals of Biology		55
Total credit hours			17+7=24	
SEMESTER II				
Sl. No.	Catalogue No.	Name of Course	Credit	Page Number
1.	Cmgt 1203	International Agri-Business Co-operative Models	2+0	1
2.	Econ 1202	Macro Economics for Agri-Business	2+0	7
3.	Bank 1202	Recent Trends in Indian Banking	1+1	12
4.	Bank 1203	Banking Law and Practice	1+1	13
5.	Mmgt 1202	Fundamentals of Financial Accounting	1+2	18
6.	Agro 1202	Crop Production Technology	1+1	23
7.	Path 1201	Fundamentals of Plant Pathology	2+1	26
8.	Extn 1202	Fundamentals of Agricultural Extension Education & Rural Development	2+1	29
9.	Agst 1202	Statistical Methods	2+1	34
10.	Devp 1201	Physical Education and Yoga Practices (Non-graded)	0+1	52
11.	Nsnc 1201	NSS (Non-graded)	0+1	52
Total credit hours			14+10=24	

SEMESTER III				
Sl. No.	Catalogue No.	Name of Course	Credit	Page Number
1.	Cmgt 2104	Co-operative Banking for Agri-Business	1+1	2
2.	Econ 2103	Farm Management and Resource Economics	1+1	8
3.	Bank 2104	Financial Markets	1+0	14
4.	Bank 2105	Agriculture & Micro Finance	2+1	14
5.	Mmgt 2103	Agricultural & Rural Marketing Management	2+1	18
6.	Ento 2101	Fundamentals of Entomology	2+1	25
7.	Engg 2101	Farm Machinery and Hi-Tech Agriculture	2+1	31
8.	Anhs 2101	Livestock and Poultry Management	2+1	32
9.	Fish 2101	Aquaculture and Fish Processing Technology	2+1	32
10.	Comp 2101	Computer Applications for Agri-Business	1+1	35
Total credit hours			16+9=25	
SEMESTER IV				
Sl. No.	Catalogue No.	Name of Course	Credit	Page Number
1.	Cmgt 2205	Management of Agri-Business Co-operatives in India	1+1	3
2.	Econ 2204	Economics of Development & Planning	2+0	8
3.	Bank 2206	International Finance Management	1+1	15
4.	Mmgt 2204	E-Commerce for Agri-Business	1+1	19
5.	Ssac 2202	Manures, Fertilizers and Soil Fertility Management	2+1	24
6.	Ento 2202	Pest of Crops & their Management	2+1	25
7.	Path 2202	Diseases of Crops & their Management	2+1	26
8.	Fors 2201	Introduction to Forestry	1+0	33
9.	Comp 2202	Agri Informatics	1+1	36
	Electives (Any One)		2+1	
10.	Cmgt 2206	Agri-Business Management		37
	Econ 2205	Methodology for Project studies		39
	Bank 2207	Financial System & Services		41
	Mmgt 2206	Value chain in Agriculture		43
11.	Mmgt 2205	Entrepreneurship Development	1+1	45
Total credit hours			16+9=25	

SEMESTER V				
Sl. No.	Catalogue No.	Name of Course	Credit	Page Number
1.	Cmgt 3107	Co-operative Legal System	2+1	3
2.	Cmgt 3108	Accounting & Auditing of Agri-Business Co-operatives	1+1	4
3.	Econ 3106	Agricultural Trade and Export Management	2+0	9
4.	Econ 3107	Agri-Business Project Management	1+1	10
5.	Bank 3108	Financial Management	1+2	16
6.	Mmgt 3107	Consumer Behaviour & Market Research	2+1	20
7.	Hort 3102	Standardization, Grading and Quality Control in Crop Produce	1+1	28
8.	Agst 3103	Quantitative Techniques for Agri-Business	2+1	34
9.	Elective (Any One)		2+1	
	Cmgt 3109	Social Entrepreneurship		37
	Econ 3108	WTO & Indian Agriculture		39
	Bank 3109	Digital Banking		42
	Mmgt 3108	Retail Management		44
10.	Stur 3101	All India Study Tour (Non-graded)	0+1	53
Total credit hours			14+10=24	
SEMESTER VI				
Sl. No.	Catalogue No.	Name of Course	Credit	Page Number
1.	Cmgt 3210	Management of Producer Organizations	1+1	5
2.	Cmgt 3211	Human Resource Management for Agricultural Co-operatives	1+1	5
3.	Econ 3209	Basic Econometrics	1+1	10
4.	Econ 3210	Agricultural Price Analysis	1+1	11
5.	Bank 3210	Investment Analysis & Portfolio Management	1+1	16
6.	Mmgt 3209	Agricultural Marketing Legislations	2+0	21
7.	Mmgt 3210	Marketing Information System & Commodity Derivatives	1+1	21
8.	Extn 3203	Rural Sociology and Educational Psychology	2+0	30
9.	Micr 3201	Agricultural Micro Biology	2+1	30

	Elective (Any One)		2+1		
10.	Cmgt 3212	Corporate Social Responsibility		38	
	Econ 3211	Gender Economics		40	
	Bank 3211	Financial & Cost Analysis		42	
	Mmgt 3211	International Agri-Business Marketing		44	
11.	Ssac 3203	Environmental Studies & Disaster Management	1+1	46	
Total credit hours			15+9=24		
SEMESTER VII					
Sl. No.	Catalogue No.	Name of Course	No. of Weeks	Credit	Page Number
1.	Rawe 4101	Orientation Programme	1	0+20	48
		Placement in the Assistant Registrar of Cooperative Societies and the Assistant Director of Cooperative Audit(two weeks each)	4		
		Village Stay	1		
		Project Work	14		
		Total Weeks	20		
2.	Stur 4102	All Kerala Study Tour (Non-graded)		0+1	53
Total credit hours			0+21=21		
SEMESTER VIII (Select any Two)					
Sl. No.	Catalogue No.	Name of Course	No. of Weeks	Credit	Page Number
1.	Elcb 4201	Preparation of Business Plan	10	0+20	50
2.	Elcb 4202	Rural Development Consultancy Services	10		50
3.	Elcb 4203	KAU Technology Diffusion Strategies	10		50
4.	Elcb 4204	Market Intelligence Practices	10		50
5.	Elcb 4205	Production/Processing/Procurement and Marketing of agribusiness products.	10		50
6.	Elcb 4206	Web Based Promotional Content Development for Agripreneurs	10		50
7.	Elcb 4207	Design, Development & Implementation of Financial Literacy Programmes for Farmers & Women	10		51
8.	Elcb 4208	Agri & Agri-Business Finance Consultancy Services	10		51
Total credit hours			0+20=20		

INDEX

SYLLABUS

Sl. No.	Departments	Pages
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CO-OPERATIVE MANAGEMENT

Cmgt 1101	Theory and Principles of Co-operation	2 (2+0)
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Theory

Concept of Collective Action and Co-operation, Co-operatives and other forms of business, Institutional values and Enterprise values of co-operation. Evolution of Cooperation: Ancient forms of co-operation, pioneers of cooperative movement-Robert Owen, Rochdale Pioneers, Raiffeisen, Schultze, Wollemburg and Luzzati. Evolution of principles of cooperation: Rochdale principles, ICA principles, Statement on co-operative identity: Definition, values and principles - Voluntary and open Membership, Democratic Member Control, Member Economic Participation, Autonomy and independence, Cooperative Education, Training and Information, Co-operation among Cooperatives, Concern for Community. History and Development of Co-operative movement in India: Pre and post independence period developments, Overview of Co-operatives in Kerala, Co-operatives and Sustainable Development Goals(SDGs), ICA Blueprint for a co-operative decade.

Suggested Readings

1. Krishnaswami.O.R and Kulandaiswami.V. 2000. *Co-operation Concept and Theory*. Arudra Academy, Coimbatore.
2. Guidance Notes to the Co-operative Principles. 2015. International Co-operative Alliance, Brussels.
3. Bedi.R.D.1996. *Theory, History & Practice of Co-operation*. Lall Book Depot, Meerut.
4. Hajela.T.N.2015. *Co-operation - Principles, Problems and Practice*. Ane Books Pvt. Ltd., New Delhi.
5. GOI (Govt. of India). 2009. Report of the High Power Committee on Co-operatives, New Delhi.
6. Edgar Parnell. 1999. *Reinventing Co-operation: The Challenge of 21st Century*. Plunkett Foundation, UK.
7. www.ica.coop.
8. National Institute of Cooperative Management, *Co-operative Perspective*, Pune.
9. National Cooperative Union of India, *The Cooperator*, New Delhi.

Cmgt1203	International Agribusiness Co-operative Models	2(2+0)
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Theory

Concept of agri-business co-operatives, Economic liberalization and agri-business co-operatives, Agri-business Co-operative models: Agricultural Co-operatives in the Republic of Korea- Structure and functions, Multi-purpose model of Agricultural Co-operatives in Japan, Agricultural Grain Co-operatives in USA, Agricultural Cooperatives of Germany-structure and functions, Dairy Co-operatives of Netherlands-structure and functions, Dairy Co-operatives of Denmark-structure and functions, Agricultural Cooperatives of France-structure and functions, Agricultural Co-operatives of Sweden, Agricultural Co-operatives of Canada-structure and functions, Agricultural Co-operatives of Israel--structure and functions, Agricultural Co-operatives of China- structure and functions. Agricultural Co-operatives of Thailand- structure and functions. Role of International Co-operative Alliance (ICA) in the promotion of agri-business co-operatives, International Co-operative Agri-business Support organisations : Food and Agricultural Organisation (FAO), International Labour Organisation(ILO), International Fund for Agricultural Development(IFAD).

Suggested Readings

1. Hajela.T.N. 2015.*Co-operation - Principles, Problems and Practice*. Ane Books Pvt. Ltd., New Delhi.
2. Hans Groeneveld. 2016. *Doing Co-operative Business Report - Methodology and Exploratory Application for 33 Countries*. International Co-operative Alliance, Brussels.
3. ICA. 2016. *Exploring the Co-operative Economy*. International Co-operative Alliance, Brussels.
4. ICOPEd. 2016. *Co-operative Enterprises: Services, Practices & Performance*. Institute of Co-operatives & Bio-Enterprise Development, Philippines.
5. Karthikeyan.M. and Nakkiran.S. 2012. *Co-operatives & Agri-Business*. Discovery Publishing House, New Delhi.
6. Madane.M.V. 1993. *Agricultural Co-operatives in South Korea: The Unitary Approach*. ICA.
7. National Co-operative Union of India, *Indian Co-operative Review*, New Delhi.
8. Co-operative College of Malaysia, *Malaysian Journal Co-operative Studies*, Selangor.
9. CIRIEC, *Annals of Public and Co-operative Economics*.

Cmgt2104

Co-operative Banking for Agri-business

2 (1+1)

Theory

Co-operative banking structure in India, classification and need for agricultural credit, Organizations under short term and medium term credit structure - Primary Agricultural Credit Societies (PACS), District Cooperative Banks (DCB), State Cooperative Bank (SCB) - objectives, functions, resources, lending operations. Organizations under long term credit structure - need for long term finance, need for separate agency. Primary Co-operative Agricultural and Rural Development Banks (PCARDB), State Cooperative Agricultural and Rural Development Banks (SCARDB) - objectives, functions, resources, loan operations. Urban Co-operative Banks in India - evolution, objectives, functions, structure, resources, loan operations. Employees Credit Societies - objectives, functions, resources, loan operations. Role of national federations: National Federation of State Cooperative Banks Ltd. (NAFSCOB), National Federation of Urban Cooperative Banks and Credit Societies Ltd. (NAFCUB), National Co-operative Agricultural & Rural Development Banks Fed. Ltd. (NCARDBF), Role of NABARD in co-operative credit.

Practical

Case studies of PACS, DCB, SCB, UCB, ECS, and PCARDB. Preparation of business development plans for PACS, DCB, SCB, UCB, ECS, and PCARDB.

Suggested Readings

1. Rais Ahmad. 2013. *Co-operatives & Rural Development in India*. New Century Publications, New Delhi
2. Nakkiran.S., Karunakaran.R and Natarajan.V. 2014. *Co-operative Banks in India & Select Countries*. New Century Publications, New Delhi
3. Mathur.B.S. 2015. *Co-operation in India*. Sahitya Bhavan, Agra.
4. Amit Basak. 2010. *Co-operative Banks in India: Functioning and Reforms*. New Century Publications, New Delhi.
5. Sami.L. 2011. *Hundred Years of Co-operative Development in India*. Akansha Publishing House, New Delhi
6. NAFCUB, *Urban Credit*.

7. National Co-operative Agriculture & Rural Development Banks' Federation, *Land Bank Journal*, Mumbai
8. *NAFSCOB Journal of Rural Co-operative Credit and Banking*, NAFSCOB, Mumbai.

Cmgt2205	Management of Agribusiness Co-operatives in India	2(1+1)
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Theory

Co-operative Management : concept, meaning, definition, unique features. Management structure: General body- BOD- President- Secretary. Concept of agri-business, need, significance and types of agri-business co-operatives. Dairy co-operatives: history, Operation Flood Programmes, National Dairy Plan, types, objectives & structure of Dairy Cooperatives. Processing Co-operatives: need, objectives and functions. Marketing Co-operatives: importance, objectives, functions and types. Structure and special features of other types of co-operatives : Fisheries Co-operatives, Consumer Co-operatives, Labour Co-operatives, Weavers Co-operatives, Housing Co-operatives, Coir Co-operatives, College Cooperatives, Hospital Co-operatives. Role of state federations, national federations, and other promotional agencies promoting agri-business co-operatives: MARKERFED, KERAFED, RUBBERMARK, KCMMF, NAFED, NCDC, NCDFI, NDDB, IFFCO, KRIBHCO.

Practical

Case study of Processing and Marketing Co-operatives: APCOS, CAMPCO, Kadamba Marketing Society.

Suggested Readings

1. Koli.P.A. 2007. *Dairy Development in India: Challenges before Cooperatives*. Shruti Publication House, Jaipur.
2. Mathur.B.S. 2015. *Co-operation in India*. Sahitya Bhavan, Agra.
3. Rais Ahmad. 2013. *Co-operatives & Rural Development in India*. New Century Publications, New Delhi.
4. L.P.Singh. 2008. *Co-operative Marketing in India and Abroad*. Himalaya Publishing House, Mumbai.
5. Seetharaman.S.P and Mohanan.N. 1986. *Framework for studying Co-operative organizations : The Case of NAFED*. Oxford Books & IBH Pub.Co., New Delhi.
6. www.nddb.org.
7. *The Co-operator*, National Co-operative Union of India, New Delhi.
8. *Indian Dairyman*, Indian Dairy Association, New Delhi.

Cmgt3107	Co-operative Legal System	3 (2+1)
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Theory

History of co-operative legislations in India: Co-operative Credit Societies Act 1904-essential features, Co-operative Societies Act 1912-essential features. Special features of Report of the Committee on Model Co-operative Societies Act 1991. Multistate Co-operative Societies Act 2002-objects, need, application, registration, rights and liabilities of members, management, audit, inquiry and winding up. 97th Constitutional Amendment Act 2011- Historical Perspective. History of co-operative legislations in Kerala. Important provisions of Kerala Co-operative Societies Act and Rules 1969 : Registration, Amendment of bye-laws, amalgamation and division, Members-

rights and liabilities. Management of societies: general body, representative general body, committee, election, supersession. Properties and funds of co-operative societies, Disposal of net profit, Audit, Investments, Inquiry, supervision and inspection, Settlement of disputes, winding up and dissolution of co-operative societies. Organisational structure of Department of Co-operation and Directorate of Co-operative Audit. Functional Registrars. ILO Resolution 193-Recommendation concerning Promotion of Cooperatives.

Practical

Exercises on cases of registration, amendment of bylaws, amalgamation and division of co-operative societies, membership, management, election, supersession, settlement of disputes and winding up.

Suggested Readings

1. GOI. 2002. Multi- State Co-operative Societies Act, 2002.
2. GOI. 2002. Multi- State Co-operative Societies Rules, 2002.
3. GOI. 1991. Report of the Committee on Model Act, Planning Commission.
4. Government of Kerala. 1969. Kerala Co-operative Societies Act, 1969.
5. Government of Kerala. 1969. Kerala Co-operative Societies Rules, 1969.
6. Mohanan, P. N. 2016. *Co-operative Societies Laws in Kerala (with allied Laws)*. Swamy Law House, Ernakulam.
7. Cracogna, Dante, Fici, Antonio, Henry, Hagen (Eds.) .2013. *International Handbook on Cooperative Law*, Springer, New York.
8. ILO .2002.R 193-Promotion of Co-operatives Recommendation, 2002(No.193), Geneva.
9. *Journal of Co-operative Studies*, UK Society for Co-operative Studies.
10. *The Cooperator*, National Cooperative Union of India, New Delhi.

Cmgt3108	Accounting & Auditing of Agri-Business Co-operatives	2(1+1)
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Theory

Co-operative Accounting-meaning and scope, Salient Features, Co-operative Accounting Vs Double Entry and Single Entry System. Books and registers maintained by co-operative societies- daybook, ledgers. R & D Statement, Final Accounts. Audit : meaning, definition and objectives. Difference between audit and accounting. Types of audit. Co-operative Audit: definition, features and objectives. Difference between co-operative audit and general audit, financial audit and administrative audit. Internal control, internal check and internal audit, audit memorandum, levy of audit fees, powers of co-operative auditor, procedures of audit, directorate of co-operative audit. Stages of audit work: audit programme, vouching, routine checking, verification and valuation of assets and liabilities, assets classification reserves and provisions. Audit classification and Audit Certificate.

Practical

Preparation of audit programme, audit memorandum, calculation of audit fees of selected co-operatives such as PACS, PCARDB, Housing societies, dairy societies and consumer societies.

Suggested Readings

1. GOK .2012. Kerala Co-operative Audit Manual Vol.I.

2. Tandon, B.N. Sudharsanam,S.and Sundharabahu,S.2013.*A Handbook of Practical Auditing*. Sultan Chand & Co., New Delhi.
3. Samiuddin. 1992. *Co-operative Accounting and Auditing*. Himalaya Publishing House, Bombay.
4. Krishnaswami, O. R. 1990. *Co-operative Audit*. Oxford and IBH, New Delhi.
5. Rao,Y.K .2013.*Co-operative Accounting & Auditing*. Mittal Publications, New Delhi.
6. Karthikeyan, Mand Karunakaran, R.2013. *Co-operative Accounting*. Discovery Publishing House, New Delhi.
7. *Journal of Co-operative Accounting & Reporting*, Sobey School of Business, Canada.
8. *International Journal of Co-operative Management*, Sobey School of Business, Canada.

Cmgt3210	Management of Producer Organisations	2(1+1)
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Theory

Producer Organizations: concept, meaning, types, characteristics and scope. Process guidelines for promotion of FPOs : Incorporation of a Farmer Producer Company : Preparation for the formation of a Producer Company, Steps in Registration of PCs: Digital Signature Certificate, Direct Identification Number, Naming of a Producer Company, Memorandum& Articles of Association, Documents to be submitted to the ROC for incorporation of PC, Certificate of Incorporation. Management of Producer Companies : Membership, Powers of General Body, powers of Executive Committee, Funds, accounts and audit, appropriation of net profit. Role of central and state governments in supporting FPOs, Role of NABARD in promoting Producer Organizations.

Practical

Assessing capital requirements of a Producer Company, Assessment of the financial viability of the business of Producer Companies, Assessing institutional performance of Producer Company.

Suggested Readings

1. GOI.2013. Policy & Process Guidelines for Farmer Producer Organisations, Department of Agriculture and Cooperation, Ministry of Agriculture, Government of India, New Delhi.
2. NABARD. 2015. Farmer Producer Organisations, Farm Sector Policy Department & Farm Sector Development Department, NABARD, Mumbai.
3. ASA. 2016. Resource book on Formation & Functioning of Farmer Producer Companies. Action for Social Advancement, Madhya Pradesh.
4. Sukhpal Singh and Tarunvir Singh. 2014.*Producer Companies in India : Organisation & Performance*. Allied Publishers, New Delhi.
5. GOI.2013. The Companies Act,1956. Part IX A, Producer Companies.
6. *Indian Management*, AIMA, Newdelhi.
7. *International Food and Agribusiness Management Review*,Wageningen Academic Publishers.

Cmgt3211	Human Resource Management for Agricultural Co-operatives	2(1+1)
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Theory

Human Resource Management - meaning ,definition and importance. Acquisition of human resource - human resource planning, job analysis, recruitment, selection process and devices. Development of human resources – training need assessment, employee training and management development, career planning and development. Motivation of human resources – concept,

meaning, motivational theories. Performance appraisal methods and techniques. Rewards - types and criteria. Maintenance of human resources – compensation administration, benefits and services, disciplining employees, safety and health. Co-operative education, training and information-identification of education, training and information needs in co-operatives - institutional arrangement for co-operative training and development – NCUI, NCCT, NCCE, NCDC, NIRB, BIRD. Recruitment of human resources for co-operative sector in Kerala.

Practical

Cases on career planning, job satisfaction, motivation and performance appraisal.

Suggested Readings

1. Gary Dessler and Biju Varkkui. 2016. *Human Resource Management*. Pearson India Education Service Pvt. Limited, New Delhi.
2. K. Aswathappa.2013. *Human Resource Management: Text and Cases*. Tata McGraw-Hill, New Delhi.
3. Shaikh Aftab Anwar .2017.*Human Resource Management Practices in Cooperative Sector*. Idea Publishing, New Delhi.
4. Nakkiran S. 2002. *A Treatise on Co-operative Management*. Rainbow Publications, Coimbatore.
5. Karthikeyan.M. and Nakkiran.S. 2012. *Co-operative Organization & Administration*. Discovery Publishing House, New Delhi.
6. *Human Resource Management Review*, Elsevier.
7. *South Asian Journal of Human Resource Management*, Sage.

DEVELOPMENT ECONOMICS

Econ 1101	Micro Economics for Agribusiness	3 (2+1)
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Theory

Economics- meaning, scope and subject matter; basic concepts, central problems of the economy, approaches to economic analysis. Nature of economic theory: rationality assumption, concept of equilibrium, economic laws. Business economics: meaning and scope. Demand: law of demand, demand schedule and demand curve, determinants. Elasticity of demand: concept and measurement of price elasticity, income elasticity and cross elasticity. Supply, law of supply, supply schedule, supply curve, determinants of supply, elasticity of supply. Theory of consumer behavior: Marshall's utility analysis, Hicks Allen indifference curve approach. Production: process, factors of production, input output relationship, iso quant's and iso cost line, expansion path and ridge lines. Laws of returns - Laws of variable proportions and returns to scale. Theory of Cost: Cost concepts, short run and long run cost curves; Market structure: meaning and types of market, basic features of perfectly competitive and imperfect markets. Theory of the firm-equilibrium of the firm and industry under perfect competition, monopoly and monopolistic competition and oligopoly.

Practical

Formulation of demand functions of various durables and non-durables including agricultural commonalities. Estimation of demand function, determination of equilibrium price and quantity. Estimation of elasticity for various goods including agricultural commodities. Estimation of Cost

equation , calculation of AC, AVC, MC and plotting of cost curves. Geometric determination of consumer and produce equilibrium. Determination of equilibrium quantity and price for various markets using marginalist rules.

Suggested Readings

1. Koutsoyannis, A.1989. Modern Micro Economics. ELBS Publishers, HongKong.
2. Pyndick Robert, and Daniel Rubinfeld, 1995. "Micro Economics", McMillan Publishers, New Delhi.
3. Hal, R.Varian, 1993. Intermediate Microeconomics, Modern Approach, (3rd Ed.). Affiliated East-West Press.
4. Stiglitz, J.E and C.E. Walsh. 2002. Principles of Economics, (3rd Ed.). W.W. Norton & Company, New York.
5. Singh, Sadhu and Singh. 2013. Fundamentals of Agricultural Economics, Himalaya Publishing House, Mumbai.
6. Dominick Salvatore. Microeconomics. Theory and Applications', Oxford University Press, New Delhi.

Econ 1202	Macro Economics for Agribusiness	2 (2+0)
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Theory

Macro-Economics: nature, scope and significance. National income: concepts and meaning, measurement methods, estimation of national income in India. Circular flow of income, two sector, three sector and four sector models, flow of funds and input output out analysis. Money: Barter system of exchange and its problems, evolution, meaning and functions of money, classification of money. Money supply: definition, components of money supply, determinants of money supply, money supply In India. Theories of demand for money-Quantity theory of money, Cambridge approach, post Keynesian theories- Inventory Management theory of Baumol, Portfolio approach of Tobin, Restatement of Quantity theory of Money by Milton Friedman. Theories of income and employment: Classical theory of employment, Say's law of markets, Keynesian Psychological Law of consumption, income and employment multiplier, balanced budget multiplier, multiplier-accelerator interaction: Money interest and prices, theories of interest, liquidity preference, loanable funds and modern theories. Theories of inflation: types, inflationary gap, structuralist and monetary approaches, Philip's curve, causes and effects of inflation, control of inflation, trends in inflation in India

Suggested Readings

1. Timothy, D. Tregarthen,1996."Macro Economics" Worth Publishers, NewYork
2. Gupta, G.S. 2004. "Macro Economics Theory and Application", Tata and Mc Graw-hill, New Delhi
3. Gregory Mankiw, 2008, Brief Principles of Macroeconomics", South Western Publishers,USA.
4. Richard, T. Froyen, 2012."Macro Economics, Theories and Policies" .Prentice Hall, London.
5. Nicolli Natrass, G. Vishagha Varma, 2014. "Macro Economics Simplified". Sage Publishers, New Delhi
6. Edward Shapiro, 2010, " Macro Economic Analysis", Galgotia Publication Ltd, New Delhi.

Theory

Meaning and concept of farm management, principles of farm management. Concept of production function, factor-product, factor-factor and product-product relationship. Farm business analysis: meaning and concept of farm income and profitability, technical and economic efficiency measures in crop and livestock enterprises: Importance of farm records and accounts: various types of farm records needed, farm inventory, balance sheet, profit and loss accounts. Farm budgeting: meaning and importance, partial and complete budgeting, steps in farm planning and budgeting- appraisal of farm resources, selection of crops and livestock's enterprises. Concept of risk and uncertainty occurring in agriculture production, nature and sources of risks and its management strategies, Crop/livestock/machinery insurance – weather based crop insurance, features, determinants of compensation. Concepts of resource economics, differences between Natural Resource Economics and agricultural economics, unique properties of natural resources, positive and negative externalities in agriculture, inefficiency and welfare loss, solutions, important issues in economics and management of common property resources of land, water, pasture and forest resources etc.

Practical

Preparation of farm layout. Determination of cost of fencing of a farm. Computation of depreciation cost of farm assets. Application of equi-marginal returns/opportunity cost principle in allocation of farm resources. Determination of most profitable level of inputs use in a farm production process. Determination of least cost combination of inputs. Selection of most profitable enterprise combination. Application of cost principles including CACP concepts in the estimation of cost of crop and livestock enterprises. Preparation of farm plan and budget, farm records and accounts and profit & loss accounts. Collection and analysis of data on various resources in India.

Suggested Readings

1. Dhondyal, S. P.1991. Farm Management-An Economic Analysis. Friends Publications, Krishnapuri, New Delhi.
2. Johl, S.S. and Kapur, T .R. 2001. Fundamentals of Farm Business Management. Kalyani Publishers, New Delhi.
3. Panda, S. C. 2007. Farm Management and Agricultural Marketing. Kalyani Publishers, Rajinder Nagar, Ludhaina.
4. Jon, M. Conrad.2010. Resource Economics. Cambridge University Press, Cambridge.
5. Beno Singh. 2012. Agriculture Produce and Management. Vista International Publishing House, Delhi.
6. David, L. Debertin. 2012. Agricultural Production Economics. Pearson Education, New Jersey.

Theory

Growth and development, concepts and definitions; characteristics of developing economies, determinants of development, evolution of development ideas, Theories of development: Rowstows stages of growth, Nelsons low level equilibrium trap, Lewis theory of unlimited supply of labour, Fei-rennis model, Nurkse theory of disguised unemployment, Leibenstein 's critical minimum effort, Strategies for development: balanced and unbalanced growth, The big push theory, dualistic theories, Myrdal theory, classical theories of growth, neo classical model, Harrod- Domar model.

Development planning: meaning, features, significance, and types of planning prerequisites of successful planning, plan process In India. Decentralized planning: rationale and significance, role of local governments, institutional arrangements, constraints, PRI and decentralized planning in Kerala. Alternate measures of development: Kuznets inverted U, Head count ratio, Lorenz curve, gini ratio, PQLI, HDI, HPI.

Suggested Readings

1. Chakravarty, S. 1985, "The State of Development Economics". based on Lecture at Manchester University in Ch.8, pp.184-203.
2. S. Chakravarty, 1997. Writings on development. Oxford University Press .
3. Debraj, Ray.1998. Development Economics. Oxford University Press.
4. Gerald, M. Meier. 1995. Leading Issues in Economic Development. (6th Ed.). Oxford University Press.
5. Jean Dréze, and Amartya Sen. 1995. Economic Development and Social Opportunity, Oxford University Press.
6. Michael, P. Todaro.1997. Economic Development, International Student (6th Ed.). Addison-Wesley.
7. Thirlwall, A. P.1999. Growth and Development with Special Reference to Developing Economies. (6th Ed).Macmillan.

Econ 3106	Agricultural Trade and Export Management	2 (2+0)
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Theory

Nature and scope of International Trade: meaning, importance, trade in domestic and international markets advantages and disadvantages. Theories of International Trade: Theories of Absolute and Comparative Cost Advantage- Smith, Ricardo, JS Mill, Taussig's restatement of classical theory, Modern theory of International Trade, Heberler, Hecksjer-Ohlin, Leontif Paradox, modern versions of the theory of comparative costs, criticisms. Terms of trade : meaning and classifications. Commercial policy: Free trade vs protection- meaning, advantages and disadvantages, tariff and non-tariff barriers. Balance of Payments and balance of trade: concepts, components, structure and India's balance of payments position. Trade in agriculture global trends, India's agricultural trade, trade in agriculture under WTO regime, Agreement on Agriculture, Sanitary and Phytosanitary Conditions, Food Safety and Standard Acts. Export Management: Composition and direction of India's foreign trade, role of Agricultural export promotion agencies: APEDA, KAPPEC, MPEDA, Commodity Boards, EXIM policies. Locating the foreign importers, SPS stipulations of importing countries for agricultural products, Importance of LC, Bank guarantee & insurance.

Suggested Readings

1. Kindle Berger, C.P. 1993. 'International Economics'.Taraporvalla, Bombay.
2. Dominick Salvatore 2001. and (later editions) ."International Economics". John Wiley and sons, NewYork
3. Vibha Mathur, 2003, "India: Foregin Trade Policy and WTO. Sage Publishers, New Delhi.
4. Errol D'Souza, 2008. 'Macro Economics'.Pearson Education.
5. Salvatore Dominick, 2012. 'International Economics'. Weily India, New Delhi.

Theory

Meaning, importance, definition and characteristics of projects, peculiarities of agricultural and agri-business, projects. Project cycle: concept and components: Project identification: factors influencing selection of agri-business projects, sources of information. Project Format: advantages and limitations. Economic analysis of agricultural projects - distinction between financial and economic analysis, need for economic analysis, determination of economic values, identification, quantification and valuation of costs and benefits, externalities and spillovers, principles of accounting prices for tradable and non-tradable goods. Systems approach to agro-industrial projects: production chain, linkages, macro-policy linkages, procurement and processing factors. Pre-feasibility studies: technical, economic, financial and managerial feasibility. Feasibility study: components, demand forecasts, input survey, location, financing, technical parameters: Identification of costs and benefits, cash flow analysis – principles and components, technical, institutional, financial and economic appraisal of projects; techniques of financial appraisal – non-discounting and discounting techniques. Project appraisal under risk: types of risk, Sensitivity analysis, methods of incorporating risk. Project implementation: functions of project manager, constraints in project implementation. Scheduling and monitoring: advantages of scheduling and monitoring, monitoring techniques, network techniques – rules for network formation; dependency chart, PERT and CPM. - UNIDO and LM approach and SCB analysis in India.

Practical

Study of model feasibility reports of agricultural/ agribusiness projects. Exercises in (a) cash flow analysis, (b) appraisal techniques, (c) debt servicing, (d) sensitivity analysis. Exercises in project scheduling and monitoring techniques collection of field data and preparation of PERT charts for a medium and long term agricultural project – analysis of critical path and time cost trade off with the help of PERT diagrams. Preparation of model Agri-business projects

Suggested Readings

1. UNIDO.1978. Manual for Preparation of Industry Feasibility Studies. United Nations.
2. Price Gittinger, J.1982. Economic Analysis of Agricultural Projects. John Hopkins University Press.
3. Austin James .1992. Agro Industrial Project Analysis Critical Factors. John Hopkin University Press, London.
4. Joseph Phillip Hella and Daniel Wilson Ndyetabula. 2012. Agribusiness Project Appraisal: Theory and Applications, Intersperses – Tanzania.
5. Prasanna Chandra, 2014. Projects: Preparation. Appraisal, Budgeting and Implementation, Tata Mc Graw Hill.

Theory

Nature and scope of Econometrics , methodology of econometrics population regression function, Simple linear regression model: Stochastic Assumptions – BLUE – Gauss Markov Theorem, model specification, estimation of parameters, estimation of SE, t, R and F ratio, inferences, applications. Multiple Regression Models, least square estimation, R² and adjusted R², partial regression coefficients, testing of hypothesis, functional forms of regression models, qualitative independent

variables. Econometric problems: Multicollinearity problem , reasons, consequences , methods for detecting the presence , remedies. Auto Correlation: reasons, consequences, Durbin Watson d statistics, remedies. Heteroscedasticity: reasons, consequences, methods for detecting presence, remedies

Practical

Development of agriculture models with simple illustrations, Estimation of linear regression models and testing, Estimation of production functions , Examination of Multicollinearity problem for various model , Estimation of Durbin Watson d statistic and interpretations , Estimation of Heteroscedasticity.

Suggested Readings

1. Koutsoyiannis, 1973. Theory of Econometrics. Harper and Row, New York.
2. Maddala, Y. S. 2001. Introductions to Econometrics. John Wiley and Sons Ltd, New York.
3. Gujarati Damodar, 2003. and (later editions) Basic Econometrics. Mac Grawhill , New York
4. Greene, H. William, 2003 and (later editions) Economic Analysis, Pearson Education Inc. , New Delhi.

Econ 3210

Agricultural Price Analysis

2 (1+1)

Theory

Meaning and concepts of agricultural prices: farm harvest price, futures and spot prices, producer price, price spread, FOB price, C&F price, CIF price, Functions and importance of prices, market prices and administrated prices, sources of price statistics. Cobb web models: convergent, divergent and perpetually oscillating models. Pricing methods: skimmed pricing, cost-plus pricing, penetration pricing. Estimation of demand and supply forecasting agricultural commodities. Price stabilization measures. Price forecasting methods: simple trend analysis, use of seasonal index, exponential smoothing, and Delphi method. Temporal and spatial fluctuations in agricultural prices: types and their causes. Analysis of price movements: estimation of trend, seasonal, cyclical and irregular movements in prices over time. Analysis of spatial price variations and market integration. Types, construction and uses of price relatives and weighted index numbers- General Price level and inflation, Agricultural prices and inflation. Retail and wholesale price index based inflation measures. Commission on Agricultural Costs and Prices (CACP) and State Agricultural Price Commissions. Minimum Support Price Scheme and Market Intervention Scheme

Practical

Collection of data on arrivals and prices of agricultural produce from local markets, Study of farm harvest prices, Study of administrated prices for agricultural produce, Study of wholesale prices. Construction of simple index numbers for prices, Construction of Laspeyre's index, Paasche's index Fisher's index, Exercises on the methodology used for constructing wholesale and retail price index numbers in the country. Exercises on the calculation of inflation rate using wholesale and retail price index numbers, Calculation of demand and supply elasticities with different methods. Estimation of demand and its forecasting, Estimation of supply and its forecasting. Estimation of trend in time series of agricultural prices, Cyclical fluctuations in time series of agricultural prices, Seasonal variations in time series of agricultural prices, Irregular price movement in time series of agricultural prices, Price forecasting exercises, spatial price variation and market integration.

Suggested Readings

1. Khalon, A .S.and D .S. Tyagi, 1983. Agricultural Price Policy in India. Allied Publishers Ltd, New Delhi
2. Acharya, S.S., Agarwal, N.L. 1987. "Agricultural Marketing in India". Oxford and IBH, New Delhi.
3. Acharya, S.S., Agarwal, N.L. 1994. "Agricultural Prices and Policy". Oxford and IBH, New Delhi.
4. F. Bailey Norwood, Jayson L. Lusk, 2008. Agricultural Marketing and Price Analysis. Pearson/Prentice Hall.

RURAL BANKING & FINANCE MANAGEMENT

Bank 1101	Fundamentals of Banking	2 (2+0)
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Theory

Evolution of banking: origin, definition; types of banks. Commercial banking systems. Functions of commercial banks. Principles of commercial banking. Credit creation by commercial banks- technique and limitations. Central banking: origin; Reserve Bank of India – evolution, organisation; departments and functions – Monetary authority, Regulator and Supervisor of financial system, manager of foreign exchange, issuer of currency, developmental role, banker and debt manager to Governments, Banker to the Banks. Monetary policy: objectives and instruments. Historical perspective of Indian banking: Evolution of Indian banking till independence, social control; Nationalisation; Lead Bank Scheme, Village Adoption Scheme, Differential Rate of Interest, Regional Rural Banks: evolution- organisation -functions- consolidation; Service Area Approach, Kisan Credit Card: origin-characteristic features. Post liberalisation banking in India: major recommendations of Committee on Financial System and Committee on Banking Sector Reforms; Mergers and acquisitions in banking sector; entry of new generation banks. Differentiated banks: Payment Bank- Small Finance Bank; permitted business, Financial Inclusion: Concept; RBI and NABARD initiatives for financial inclusion.

Suggested Readings

1. Gorden.E. and Natarajan, K. 2006, Banking – Theory, Law & Practice, Himalaya Publishing House, New Delhi.
2. Parameswaran, R.,and Natarajan S 2003. Indian Banking, S. Chand & Co. (portion as per the lesson plan from the chapters 1, 8, 14, 15, 16, 17 & 19).
3. Maheswari, S.N and Paul R.R. 2003. Banking Theory, Law & Practice, Kalyani Publishers.
4. Shekhar.K.C. 2000 Banking Theory and Practice, Vikas Publishing House Pvt. Ltd., New Delhi.
5. IIBF. 2017. Principles and Practices of Banking, Macmillan Education.

Bank 1202	Recent Trends in Indian Banking	2 (1+1)
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Theory

Technological Advances in Banking; Communication Networks in Banking System, electronic banking, Automated Clearing Systems, CHIPS, Electronic Fund Transfer: ECS, RTGS, NEFT, IMPS, IFSC, ATM card, debit card, credit card, RuPay card, CBS, Internet Banking, Mobile banking, Digital Wallets, Digital banking, Cloud Computing, CTS, International payment systems, SWIFT, RBI-Payment and Settlement system, Digital certificate, Digital signature, CDM, cashless economy,

Cashless payment system. Competition in Indian Banking - Non-bank actors - Peer to Peer lending, Crowd-funding, Prepaid Instruments (PPI), TReDS. Regulatory requirements for functioning of banks: management of Non Performing Assets; IRAC norms, concept of Debt Restructuring. Capital Adequacy Ratio: Overview of Basel Norms. Credit rating for banks: CAMELS rating; concept of Asset Liability Management in banks; types of risks. Financial Sector Legislative Reforms Commission (FSLRC), 2011. Deregulation of interest rates: MCLR, BPLR. PMJDY, PMAY, PMSBY, PMJJBY, PMMY. Major recommendations of the Committee on Comprehensive Financial Services for Small Businesses and Low Income Households.

Practical

Classification of Non – Performing Assets into Sub Standard, Doubtful and Loss Assets, provisioning for NPAs. Classification of Tier I and Tier II capital of commercial banks, risk-weighted assets of balance sheet and off-balance sheet items. Identification of major risks faced by banks. Computation of Capital to Risk Weighted Assets Ratio.

Suggested Readings

1. Maheswari, S.N., and Paul R.R., Banking Theory, Law & Practice, Kalyani Publishers.
2. Muralidharan, D. 2015. Modern Banking: Theory and Practice, Prentice Hall of India Learning
3. Gordon, E., Natarajan, K., Banking – Theory, Law & Practice, Himalaya Publishing House.
4. Indian Institute of Bankers, Electronic Banking and Information Technology in Banks, MacMillan.
5. Mitha, A.S. 2016. Financial Inclusion: Reaching the unreached, SSDN Publishers.

Bank 1203	Banking Law and Practice	2 (1+1)
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Theory

Banking Legislation in India: Banking Companies Act, 1949 - Banking Regulation Act, 1949- objectives, important provisions: definitions – banking, banking company, approved securities, Demand and Time Liabilities; permitted and prohibited business of a banking company; capital requirements; maintenance of liquid assets; powers of the RBI – cash reserve, licensing of banking companies. Branch Licensing, Branch Authorisation Policy for Commercial Banks, Setting Up of a New Bank, New Bank Licensing Policy, 2013. Banker and Customer: general and special relationship between a banker and customer; obligations of banker. Banking Ombudsman. Types of customers. operation and closing of different types of bank accounts. New types of accounts – flexi deposits, tailor made schemes, special types of bank customers. Accounts of Non Resident Indians. Regulations regarding KYC/AML. Law relating to Negotiable Instruments: characteristics of negotiability, types, negotiation and assignment, endorsement; crossing of cheques; collecting banker – legal status – statutory protection– duties; paying banker –dishonor of cheques, statutory protection, payment in due course, holder and holder in due course. Lien, pledge, mortgages, hypothecation, guarantee and indemnity, co-obligant.

Practical

Discussion on important legal decisions on banker - customer relationship and negotiable instruments. Exercise on procedure for opening and operation of deposit accounts. Case analysis on contractual capacity of special types of customers. Preparation of dummy bills of exchange and promissory notes. Case analysis on endorsement, crossing, marking and dishonour of cheques. Procedure for filing complaints with a banking ombudsman.

Suggested Readings

1. Maheswari, S.N., Paul R.R. 2015. Banking Theory, Law & Practice, Kalyani Publishers.
2. Gorden, E., Natarajan, K., Banking – Theory, Law & Practice. 2017. Himalaya Publishing House, Mumbai.
3. Indian Institute of Bankers (IIB), Law and Practices Relating to Banking, MacMillan.
4. Shekhar.K.C. 2003., Banking Theory and Practice , Vikas Publishing House, New Delhi.
5. IIBF. 2017. Legal and regulatory aspects of Banking. Macmillan Education.

Bank 2104

Financial Markets

1 (1+0)

Theory

Indian financial system: constituents- financial assets, financial markets and financial institutions. Introduction to financial markets: Structure of Financial Market in India. Capital Market: introduction, concept, Role, Evolution in India; Capital Market Instruments: Primary Market Initial Public Offer (IPO). Secondary Market: origin and development of stock market, role and functions of stock exchanges, listing of securities, trading and settlement procedure, stock exchanges in India – BSE, NSE, OTCEI. Securities Exchange Board of India: objectives and functions. Depository system : Depository, Depository Participant, Stock Holding Corporation of India Ltd., NSDL, CSDL. Money market: constituents, instruments. FIMMDA (Fixed Income, Money Market and Derivatives Association).

Suggested Readings

1. Shashi, K, G., Nisha, A., and Neeti, G. 2016. Financial Markets and Institutions. Kalyani Publishers.
2. Thomas, K. P. 2016. Introduction to Financial Markets and Instruments. Kerala Sanchari.
3. Meir, K. 2016. Financial Institutions and Markets. Oxford University Press.
4. Financial Markets: A Beginners' Module, Workbook from NSE.
5. Bhole, I. M. Financial Institutions and Market, 5th edition, 2nd reprint in 2009 Tata McGraw Hill.

Bank 2105

Agriculture and Micro finance

3 (2+1)

Theory

Agricultural finance: concept, features, problems and types of agricultural credit. Principles of agricultural credit. Lending to priority sectors. Agri-business finance: importance, schemes of commercial banks for agri-business finance. Cost of cultivation and scale of finance of DLTC and NABARD. Kisan Credit Card: origin, features, computation of credit limit. Procedures for various types of agricultural loans. NABARD: origin, developmental and promotional role, RIDF. NPAs in agricultural lending: applicability of the SARFESI Act in agricultural lending. Crop insurance: history, types and problems of crop insurance, various schemes for crop insurance, RKBY, origin and functions of Agricultural Insurance Company of India Ltd. Concept of micro finance: definition, significance and micro-finance institutions. Women SHGs – genesis and percolation, SHGs abroad – Bangladesh Grameen Model, SHG models in India – SEWA, WWF, MYRADA, CRUSADE, SHREYAS, RASTA, CDS, Kudumbasree Model in Kerala. Financing Self Help Groups (SHGS): SHG Bank Linkage Programme. Impact of micro finance: development impact, women empowerment through micro finance institutions. NABARD and micro finance institutions.

Practical

Eligibility conditions for availing loan, documents to be submitted by the proposed borrower, security to be offered, scale of finance of NABARD / DLTC, loan amount, margin requirement and subsidy, insurance coverage, method of disbursement and follow up of the loan, calculation of interest, equated annual installments / equated monthly installments, repayment schedule of the loan, computation of cost of cultivation and maintenance, incremental income of proposed projects/ income generated from the project, benefit – cost ratio, economic feasibility of projects, preparation of project reports for different crops/agri-business units. Computation of credit limit under KCC.

Suggested Readings

1. Memoria.C.B 2003. Agricultural Problems of India, Kitab Mahal Allahabad.
2. Agricultural News, National Academy of Agricultural Sciences.
3. Malcolm Harper, 2001. Practical Micro Finance –A Training Manual for South Asia, Vistaar.
4. Thomas Fisher, and Sriram.M.S.(2004) Beyond Micro Credit- Putting Development Back into Micro Finance, Vistaar.
5. Karmakar.K.G.2002. Rural Credit and Self Help Groups – Micro Finance Needs and Concepts in India, Sage Publication India Pvt. Ltd.

Bank 2206

International Finance Management

2 (1+1)

Theory

Introduction to international finance. Raising funds in the international markets: euro equity issues – GDR, ADR; Euro Bond Market ; Euro Currency Market, ECBs, FII , FDI. International Development Financial Institutions: IMF, IBRD, IDA, IFC, ADB, BRICS Bank. Foreign Exchange Market: concept of foreign exchange, participants in the foreign exchange market, types of dealings in the foreign exchange market, supply and demand for foreign exchange. Theories of Exchange Rate, Fixed and Floating Exchange Rates; factors affecting exchange rates. Exchange Rate Quotations: LIBOR, Buying and Selling rates, Market rates and Customer rates/ merchant rates, Cross rates and Chain Rule in Exchange Rate Arithmetic, Forward points – premium and discount; need for Forward Exchange Contracts; Forward Rates in India, calculation of exchange rates for forward contracts, calculation of TT buying, TT selling, bill selling and bill buying rates, Documents used in International Trade: Letters of Credit; Bill of Lading, Consular Invoice, Certificate of Origin etc.. Foreign Currency Accounts Abroad – Vostro, Nostro Account, Loro Account. Exchange Rate of the Rupee: Modified Liberalised Exchange Rate Management System (LERMS). Exchange control: objectives, methods– role of RBI, FEMA, 1999.

Practical

Computation of merchant rates-TT buying, TT selling, bills selling and bills buying rates. Calculation of exchange rates of different currencies using cross rates and chain rule. Calculation of forward rates. Assignment on FDI and FII investments in India.

Suggested Readings

1. Varshney and Bhashyam. International Financial Management – an Indian Perspective, Sultan Chand & Sons.

2. Surendra Yadav S., Jain, P.K., Max., Foreign Exchange Market – Understanding Derivatives and Other Instruments.
3. Bhardwaj H. P., Foreign Exchange Handbook, Wheeler Publishing.
4. Anoop, P. 2014. Foreign Exchange: Exchange Risk and Corporate International Finance, Randeon Publications.
5. Maurich, D.L. 2016. International finance. Routledge.

Bank 3108	Financial Management	3 (1+2)
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Theory

Introduction to financial management. Functions of a finance manager. Time value of money. Financial forecasting. Capital budgeting decisions and techniques. Sources of Long Term finance. Cost of Capital. Capital structure: importance, factors influencing, features of an optimal capital structure, theories of capital structure – Net Income Approach, Net Operating Income Approach, Miller and Modigliani Approach. Leverage: leverage in financial context, measures of leverage. Dividend policy: Dividend decision, theories of dividend policy – Traditional Approach, Walter Model, Gordon’s Dividend Capitalisation Model, Miller Modigliani Model, Rational Expectation Model. Estimation of Working Capital Requirements: Concept, factors affecting the working capital, operating cycle approach, criteria for evaluation of working capital management. Inventory Management: nature, role, purpose, types, costs, inventory management techniques. Receivables Management: purpose and cost of maintaining receivables, credit policy, credit granting decisions, monitoring receivables. Cash management: liquidity – profitability trade off, need and objectives, cash budget, factors for efficient cash management.

Practical

Appraisal of project proposals using capital budgeting techniques. Computation of costs of borrowed capital, preferred stock, equity capital and retained earnings. Calculation of Operating Leverage, Financial Leverage and Combined Leverage. Calculation of value of the firm by using net income approach, net operating income approach, Miller and Modigliani Approach, Gordon’s Approach. Estimation of working capital requirement. Exercises on inventory management.

Suggested Readings

1. Pandey, I.M., 2010. Financial Management (10th Ed.), Vikas Publishing House (P) Ltd, NewDelhi.
2. Vyaptakesh, S. 2012. Fundamentals of Financial Management, Pearson Publishers.
3. Sharma, R. K., and Sasi Guptha K., Management Accounting, Kalyani Publishers.
4. Khan and Jain 2014., Financial Management, Tata McGraw Hill.
5. Ravi, M.K.2015. Financial Management : Theory, Problems, Cases. Taxman Publications Prentice Hall of India Learning(8th ed.).

Bank 3210	Investment Analysis and Portfolio Management	2 (1+1)
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Theory

Investment scenario: concept, characteristics, monetary and real rate of return, investor and speculator, classification of investments based on risk, investment process, investment environment. Risk in investment. Valuation of securities: returns on fixed income securities, bond valuation, preference share valuation, equity valuation. Fundamental analysis–economy, industry

and company. Technical analysis: distinction from Fundamental Analysis, Dow Theory, techniques of Technical Analysis. Efficient market hypothesis: concept and forms of market efficiency, implications. Portfolio management. Portfolio analysis – returns and risk characteristics of individual assets, return and risk of a portfolio, diversification of risk, Capital Assets Pricing Model. Portfolio selection: portfolio selection problem, selection of optimal portfolio. Portfolio revision.

Practical

Valuation of fixed income securities: computation of YTM of a bond, computation of present value of a bond. Valuation of preference shares, equity shares. Technical Analysis: price bar chart and moving average. Company Analysis: application of Ratio Analysis and calculation of intrinsic value of a share. Risk and Return: computation of return and risk of individual assets and of a portfolio. Valuation of securities using CAPM.

Suggested Readings

1. Shashi, K. G., and Rosy, J. 2016. Security Analysis and Portfolio Management. Kalyani Publications.
2. Kevin, S. 2015. Security Analysis and Portfolio Management(2nd Ed.). Prentice Hall of India Learning.
3. Suyash, B. 2015. Security Analysis and Portfolio Management. Wiley Biztantra.
4. Punithavathy, P. 2013. Security Analysis and Portfolio Management. Vikas Publishing House.
5. Ranganathan, M. and Madumathy, R. 2012. Security Analysis and Portfolio Management (2nd Ed.), Pearson Education.

RURAL MARKETING MANAGEMENT

Mmgt 1101	Marketing Management	2(1+1)
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Theory

Marketing – Definitions and Concepts. Roles of Marketing managers. Market segmentation, Targeting and Positioning. Market structure, Conduct and Performance. Types of Marketing Management- Meaning and Importance of Marketing Management. Elements of Marketing Management process, Marketing environment marketing management policy and planning. 4 P's of marketing mix, Product, Price, Promotion and Physical distribution. Developing marketing strategies –Product strategies Pricing strategies Marketing communication strategies and Channel management strategies. Social, Ethical and Ecological issues in Marketing.

Practical

Creativity workshop on new product development; Mock selling, Marketing games, Marketing environment scanning, Market situation analysis – market survey, Evaluation of Advertisement, Cases of brand building, Product Life Cycle analysis, Marketing strategies of selected Agribusiness enterprises.

Suggested Readings

1. Stanton,W.J.,Etzel,J.M., and Walker,J.B.2007.*The Fundamentals of Marketing*,McGraw Hill Inc., New York, 325p.
2. Kotler,P. 2015.*Marketing Management* . Prentice Hall of India, New Delhi, 480p.
3. Mokwa, E.C.1998. *Marketing Classics*, Prentice Hall, New Jersey, 225p.

4. Rachman,D.1994.*Marketing Today*. Harcourt Brace College Publishers.Denmark, 317p.
5. Nair,N.R and Nair,S.R.1993. *Marketing*, Sultan Chand & Sons New Delhi, 253p.
6. Kotler,P., Koshi, A., and Keller,K.L. 2009.*Marketing Management*. Dorling Kindersley (India) Pvt. Ltd,New Delhi, 750p.
7. Ramaswamy,V.S and Namakumar,S.2013.*Marketing Management: A Global Prespective Indain Context*.McGraw Hill Education (India) Pvt. Ltd, New Delhi, 346p.
8. Kotler,P., Koshi,A.,Keller,K.L., and Jha,M.2013.*Marketing Management-A South Asian Prespective*. Dorling Kindersley (India) Pvt. Ltd, New Delhi, 687p.
9. *International Journal of Marketing and Management Research*, Sree Krishna International Research and Educational Consortium. India
10. *Journal of Hospitality Marketing and Management*[Online], Routledge Co-Published by Taylor and Francis Ltd.

Mmgt 1202	Fundamentals Financial Accounting	3 (1+2)
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Theory

Introduction concepts and conventions of accounting. Meaning and Definition of Book keeping. Double entry system of book keeping. Practical system of Accounting. Bank reconciliation statement Concepts of Capital and Revenue. Preparation of trial balance and preparation of Final accounts. Depreciation accounting – Methods of depreciation. Indian Accounting Standards

Practical

Preparation of journal and recording the business transactions in journal, Preparation of ledger and ledger posting, Preparation and solving of problems relating to subsidiary books, Preparation of cash book, Preparation petty cash book with imprest system, Preparation of Bank Reconciliation Statement, Preparation of Trial balance, Preparation of Final accounts with adjustments– Trading, Profit and Loss accounts and Balance sheet.

Suggested Readings

1. Gupta,R.L.andGupta,V.K. 2013. *Principles and Practice of Accountancy*. Sulthan Chand & Co. Ltd, New Delhi,557p.
2. Jain,S.P. and Naring,J.L.2015. *Principles and Practice of Accountancy*. Kalyani Publishers, New Delhi, 602p.
3. Maheswari ,S.N.and Maheswari,S.K.2014. *Advanced Accountancy*.Vikas Publishing House Pvt Ltd, New Delhi,588p.
4. Maheswary,S.N., Maheswary,S., and Maheswary,S. 2013. *An Introduction to Accountancy*, Vikas Publishing House Pvt.Ltd, New Delhi,496p.
5. *International Journal of Research in Finance and Marketing*, Euro Asia Research and Development Association, New Delhi.
6. The Journal of Financial Reporting, Emerald Publishing Limited, UK.

Mmgt2103	Agricultural & Rural Marketing Management	3(2+1)
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Theory

Agricultural marketing – Definition and Scope, Agriculture Markets and Market structure-Components, Conduct and performance. Agriculture Input Marketing; Seed marketing, fertiliser and

pesticides, Planting material, Credit facility and Marketing of Insurance products. Government policies regarding agriculture inputs. Agriculture throughput marketing; Marketing eco system, Grading and standardization of agriculture commodities, Market information, Marketing intelligence, Market integration, Market efficiency.

Agriculture output marketing; Structure and conduct of agriculture market, Role of institutions in agriculture marketing, Value addition in agriculture, Marketing of selected value added products.

Rural Marketing - Definition and scope. Marketing of products in rural to rural-rural to urban and urban to rural. Rural Market environment. Rural market segmentation, targeting and positioning. Rural Market strategies; Product, Price, Communication and Channel management strategies.

Practical

Visits to various agriculture markets; Cooperative societies, Regulated markets etc to analyse market structure, Conduct and Performance. Visit to AGMARK laboratory Kochi and E-Auction centres to study Grading, Standardisation and Auctioning system. Analyse the marketing channels of value added agriculture product.

Analysis of rural marketing environment based on secondary data. Case study of segmentation and positioning strategies of some rural enterprises. Analysis of the PLC of certain rural products. Case studies of rural branding, Rural pricing strategies adopted by selected firms, Case studies of some existing distribution models. Study of various format of rural retailing.

Suggested Readings

1. Acharya, S.S and Agarwal, N.L. 2012. *Agricultural Marketing in India*. Oxford IBH, New Delhi, 572p.
2. Velayudhan, S. 2007. *Rural Marketing - Targeting the Non-Urban Consumer*. Response Books, New Delhi, 281p.
3. Sayula, K. 1994. *Rural Marketing in India*. Anmol Publications, New Delhi, 316p.
4. Kohls, K.I and Joseph, N. 2001. *Marketing of Agricultural Products*. Mac Millan Publishing Company, New York, 358p.
5. Kashyap, P. 2016. *Rural Marketing*. Pearson India Education Services Pvt.Ltd, New Delhi, 301p.
6. Dogra, B. 2010. *Rural Marketing*. McGraw Hill Education, New Delhi, 324p.
7. *International Journal of Agricultural Marketing*, Premier Publisher, USA.
8. *Indian Journal of Agricultural Marketing*, Indian Society of Agricultural Marketing, Hyderabad.

Mmgt 2204	E-commerce for Agribusiness	2(1+1)
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Theory

Introduction- meaning of E-commerce, forces behind E-commerce, E-commerce industry framework, brief history of E-commerce, e-commerce business models- Network infrastructure for E-commerce, Electronic Data Interchange (EDI), Development of EDI, Application of EDI in business, legal requirements in E-commerce Introduction of E-commerce in supply chain management (SCM) and customer relationship management (CRM). E-commerce standards E-commerce law-, legal issues in Indian scenario.

Mobile commerce- introduction to M-commerce. Introduction to web security, E-Marketing-An Overview sE-marketing Techniques, Types of E-Market-, Definition of E-market, E-Malls, E-Storefront, E-Marketplace

Internet Marketing, Digital Marketing Components of E-Marketing .E-Customers -, Online Buying Process

Practical

E-commerce- case studies of which include six success stories like Indiatimes. com, Rediff. com, Baazee. com, SAIL, ITC- E-choupal, AMUL, Digital Marketing- Introduction, the effects of E-business technologies on marketing strategy, First generation marketing tools- Email marketing, online marketing, search marketing, affiliate marketing . Second generation digital marketing tools and viral marketing, Future challenges and opportunities of E-commerce.

Suggested Readings

1. Hanson,W, and Kalyanam,K.2012. *Internet Marketing and E-Commerce*, , Cengage Learning Publishers, Boston, 656p.
2. Strauss, J. and Raymond, F.2013.*E-marketing*. PHI learning, New Delhi,411p.
3. Wind, J.andMahajan,V. 2001.*Digital Marketing: Global Strategies from the World's Leading Experts*.Wharton's prestigious SEI Center, California,416p.
4. Wertime,K. and Fenwick,I. 2008.*Digital Marketing: The Essential Guide to New Media & Digital Marketing[Online:Wiley.com]*,350p.
5. Joseph,P.T. and S. J .2015.*E-Commerce An Indian Perspective*, PHI Learning Pvt.Ltd, New Delhi, 564p.
6. Mohapatra,S. 2012.*E-Commerce Strategy: Text and Cases*, Springer Science& Business Media, New York, 415p.
7. Chaffey,D. 2014. *Digital Business and E-Commerce Management*. Pearson Education Ltd, New Delhi, 303p.
8. Journal of Internet Commerce, Routledge , Co-Published by Taylor and Francis Ltd.US
9. Journal of Organizational Computing and Electronic Commerce, Taylor and Francis Ltd,US.

Mmgt 3107

Consumer Behaviour and Market Research

3(2+1)

Consumer behaviour – Meaning, importance and concepts. Rural consumer behaviour – consumer behaviour v/s user behaviour. Factors affecting purchases. Impact of distribution of consumers Consumer buying motives. Factors influencing consumer behaviour and Rural consumer behaviour. Characteristics of Rural Consumer. Consumer decision process Post purchase behaviour, Consumer buying process, Diffusion of Innovation Introduction to market research, rural market research, research process, steps in market research, Types of research Approaches to economic analysis - basic and applied research. Identification of market research problems. Research design. Analysis of data, Writing of reports.

Practical

Conducting consumer behaviour studies, Brainstorming sessions to identify Pre-purchase, purchase and post-purchase behaviour of selected rural and agricultural products. Preparation of Market research reports in rural and urban area and presentation of reports. Projects on behaviour of rural consumers towards selected products based on field data.

Suggested Readings

1. Loudon,D.L.1992.*Consumer Behaviour: Concepts and Applications*. McGraw Hill, New York, 363p.
2. Schiffman,L.G. and Kanule,L.L.2015.*Consumer Behaviour*. Prentice Hall of India, New Delhi,496p.

3. Malhotra, N.K. and Dash, S. 2013. *Marketing Research & Applied Orientation*. Pearson Publication, New Delhi, 411p.
4. Sumathi, S. and Saravanel, P. 2009. *Marketing Research and Consumer Behaviour*. Vikas Publishing House Pvt.Ltd, New Delhi, 313p.
5. Schiffman, L.G., Wisenblit, J., and Kumar, S.R. 2015. *Consumer Behaviour*. Pearson India Education Service Pvt.Ltd, New Delhi, 499p.
6. Majumdar, R. 2010. *Consumer Behaviour-Insight From Indian Market*. PHI Learning Pvt.Ltd, New Delhi, 315p.
7. Bardley, N. 2013. *Marketing Research: Tools and Techniques*. Oxford University Press, UK, 376p.
8. Beri, B.C. 2013. *Marketing Research*. McGraw Hill, New Delhi, 298p.
9. *Journal of Consumer Behaviour*, John Wiley and Sons Ltd, USA
10. *Journal of Marketing Research*, American Marketing Association, USA

Mmgt 3209	Agricultural Marketing Legislations	2(2+0)
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Theory

Need and evolution of Marketing Legislations-Review of Agricultural Produce Markets Acts in India- Distribution of legislative powers between parliament and state assemblies. Salient features and provisions of (1) Agricultural Produce Markets Act (As Kerala has not made any legislation in this regard, the study may be based on APMC Model Act 2003. (2) Food safety & Standards Act 2006 and Food Safety & Regulation 2011. (3) Essential Commodities Act, 1955 (4) Consumer protection Act (5) Competition Act 2002 (6) Forward Markets Act, 1952 (7) Standards of weights & Measures Act, 1976 (8) Central warehousing corporation Act (9) Agricultural Produce Marking & Grading Act (10) Patent Act 2002 (11) Geographical indications of Goods (Registration & Protection Act) (13) The protection of Plant Varieties and Farmers Rights Act 2001 (14) Indian seeds Act, 1966 (16) Insecticides Act, 1968 (17) Fertiliser control order, 1957 (18) The fertiliser (movement control) order 1973 (19) the seeds control order, 1983, Goods and Service Tax Act.

Suggested Readings

1. Gaur, S.C. and Singh, D. 2012. *A Handbook of Agribusiness*. Agrobios, New Delhi, 720p.
2. Barnard, F.L., Akridge, J.T., Dooley, F.J., and Foltz, J.C. 2012. *Agribusiness Management*, Routledge Publication, USA, 717p.
3. Kapoor, N.D. 1997. *Elements of Mercantile Law*. Sultan Chand & Sons, New Delhi, 206p.
4. Shukla, M.C. 1999. *Mercantile Law*. Sultan Chand & Sons, New Delhi, 318p.
5. Gulshan, S.S. 2000. *Consumer Protection and Satisfaction*. Wiley Eastern Ltd, New Delhi, 307p.
6. Saravanel, P. and Sumathi, S. 2001. *Legal Systems in Business*. Himalaya Publishing House, Mumbai, 334p.
7. Bare acts of the above legislations
8. *International Journal of Agricultural Marketing*, Premier Publisher, USA.
9. *Indian Journal of Agricultural Marketing*, Indian Society of Agricultural Marketing, Hyderabad.

Mmgt 3210	Marketing Information System and Commodity Derivatives	2(1+1)
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Theory

Conceptual foundation of information systems. Importance of market information and market intelligence in marketing of agricultural commodities. Essential characteristics of good marketing

information. Managing corporate data source. Social dimension of computerisation. Media planning. Analysis of Market Information for presentation. History of derivative trading in the world and India. Economic function of derivatives. Features of commodities eligible for derivative trading. Efficient price discovery and price risk management. Difference between financial derivatives and commodity derivatives. Pricing of futures and option. Hedging using futures and options. Regulations on activators market. Trading mechanism, clearing and settlement of contracts. Contract specifications.

Practical

Price analysis of selected agricultural commodity. Developing market intelligence and information system for selected agribusiness and cooperative organisations. Trend analysis of different agricultural commodities. Calculation of returns from various commodity contracts in both spot and derivative trade. Determination of price of futures contract.

Suggested Readings

1. Somanathan,T.V. 2015.*Derivatives*. Tata Mcgraw Hills Publishing Co. Ltd, New Delhi, 276p.
2. Hull, J.C. 2014.*Options, Futures & Other Derivatives*. Pearson Education Asia, New Delhi, 413p.
3. Rao,J. 2001.*Commodities Market and Introduction*, ICFAI University Press, Hyderabad, 302p.
4. Kotler,P. 2015. *Marketing Management* . Prentice Hall of India, New Delhi, 480p
5. Kashyap, P.andRaut, S. 2015.*Rural Marketing*. Book Biztantra, New Delhi, 433p.
6. *Journal of Intelligent Information System*, Springer Science and Business Media,NetherLands.
7. *Journal of Futures Market*, John Wiley and Sons Ltd[Online], USA

AGRICULTURE SCIENCES

Agro 1101	Fundamentals of Agronomy	3 (2+1)
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Theory

Agronomy and its scope, seeds and sowing, tillage and tilth, crop density and geometry. Growth and development of crops, crop rotation and its principles, adaptation and distribution of crops. water use efficiency - water management of crops, rain-fed agriculture, irrigation - methods of irrigation, soil and water conservation, soil erosion and control, watershed management. Crop nutrition, manures and fertilizers, nutrient use efficiency. Weeds – importance, classification, crop weed competition, concepts of weed management – principles and methods, herbicides – classification, selectivity and resistance, allelopathy.

Practical

Identification of crops, seeds, fertilizers, pesticides and tillage implements, Effect of sowing depth on germination and seedling vigour, Identification of weeds in crops, Methods of herbicide and fertilizer application, Study of yield contributing characters and yield estimation, studies on cropping pattern of different rainfed areas in the Country, Numerical exercises on fertilizer requirement, plant population and, herbicides, Use of tillage implements-reversible plough, one way plough, harrow, leveler, seed drill, Visit to a water management station.

Suggested Readings

1. Balasubramanian, P and Palaniappan, S.P. 2001. *Principles and Practices of Agronomy*. AgroBios (India) Ltd., Jodhpur.
2. Brady, N.C. and Well, R.R. 2002. *The Nature and Properties of Soils* (13th ed.). Pearson Education, Delhi.
3. Havlin, J. L., Beaton, J. D., Tisdale, S.L., and Nelson, W.L. 2006. *Soil Fertility and Fertilizers: An Introduction to Nutrient Management* (7th ed.). Pearson Education, Delhi.
4. KAU [Kerala Agricultural University]. 2016. *Package of Practices Recommendations*. Kerala Agricultural University, Thrissur.
5. Thomas, C.G. and Abraham, C.T. 2007. *Methods in Weed Science*. Kerala Agricultural University, Thrissur

Agro 1202

Crop Production Technology

2 (1+1)

Theory

Crop production technologies of important crops of Kerala: Season, Varieties, Land preparation, Sowing, Weed control, Water management and Pest and disease control of Rice, Coconut, Pulses, Rubber, Vegetables, Banana, Cardamom, Pepper, Tea and Coffee

Practical

Identification and familiarization of important crop of Kerala. Visit two field of Agronomic Experiments and Research Centers of related crops.

Suggested Readings

1. Kerala Agricultural University. 2016. Package of Practices

Ssac. 1101

Fundamentals of Soil Science

3(2+1)

Theory

Soil-Pedological and edaphological concepts. Weathering - soil formation - factors and processes - soil profile. Soil physical properties - soil texture - textural classes. Soil structure Classification. Bulk density and particle density of soils and porosity - their significance and manipulation. Soil compaction - soil Colour. Soils of India .

Soil moisture constants- infiltration – percolation – permeability – drainage. Soil temperature - soil air- influence of soil temperature and air on plant growth.

CEC and AEC. Concept of pH - soil acidity - brief overview of saline, sodic and calcareous soils. Soil organic matter – composition- C: N ratio.

Practical

Determination of Soil density, moisture, temperature and strength. Collection and processing of soil for analysis. Total elemental analysis of soils.

Suggested Readings

1. Das, D.K., 1997. *Introductory Soil Science*. Kalyani Publishers New Delhi

2. *Fundamentals of Soil Science*. Published by Indian Society of Soil Science, IARI New Delhi, 2002
3. Gupta, P.K. 2007. *Soil, Plant, Water and Fertilizer Analysis*. Published by AGROBIOS (India), Jodpur
4. Jaiswal, P.C. 2006. *Soil, Plant and Water Analysis*. 2nd Edn. Kalyani Publishers, Ludhiana
5. Sehgal, J. 2005. *Pedology – Concepts and Applications*. Kalyani Publishers New Delhi

Ssac 2202	Manures, Fertilizers and Soil Fertility Management	3 (2+1)
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Theory

Introduction and importance of organic manures, properties and methods of preparation of bulky and concentrated manures. Green/leaf manuring. Fertilizer recommendation approaches. Integrated nutrient management.

Chemical fertilizers: classification, composition and properties of major nitrogenous, phosphatic, potassic fertilizers, secondary & micronutrient fertilizers, Complex fertilizers, nano fertilizers Soil amendments, Fertilizer Storage, Fertilizer Control Order.

History of soil fertility and plant nutrition. criteria of essentiality. role, deficiency and toxicity symptoms of essential plant nutrients, Mechanisms of nutrient transport to plants, factors affecting nutrient availability to plants. Chemistry of soil nitrogen, phosphorus, potassium, calcium, magnesium, sulphur and micronutrients. Soil fertility evaluation, Soil testing. Critical levels of different nutrients in soil. Forms of nutrients in soil, plant analysis, rapid plant tissue tests. Indicator plants. Methods of fertilizer recommendations to crops. Factor influencing nutrient use efficiency (NUE), methods of application under rainfed and irrigated conditions.

Practical

Introduction of analytical instruments and their principles, calibration and applications, Colorimetry and flame photometry. Estimation of soil organic carbon, Estimation of alkaline hydrolysable N in soils. Estimation of soil extractable P in soils. Estimation of exchangeable K; Ca and Mg in soils. Estimation of soil extractable S in soils.. Estimation of DTPA extractable Zn in soils. Estimation of N in plants. Estimation of P in plants. Estimation of K in plants. Estimation of S in plants.

Suggested Readings

1. Burges, A, and Raw, F. 1967. *Soil Biology*. Acad.Press, New York
2. Donahu, L. R., Miller, W. R. and Shickuluna, 1977. *Soils*. Prentice Hall of India Pvt. Ltd., New Delhi
3. Gupta, P.K. 1999. *Hand book of Soil, Fertilizer and Manure*. Agro Botanica, Bikaner
4. Gupta,A.K. 2007. *Methods in Environmental Analysis of Water , Soil and Air*. 2nd Edn. Published by Agrobios (India) Jodpur
5. Mengel, K.J. and Kirkby, A. 1978. *Principles of Plant Nutrition*. International Potash Institute, Switzerland
6. Nyle.C. Brady 1995. *The Nature and Properties of Soils*. 10th Edn. Printice Hall India pvt. Ltd. New Delhi
7. Raymond W Miller and Roy L. Donahue. 1992. *Soils and Introduction to Soils and Plant Growth*. 6th edn. Printice Hall India pvt. Ltd. New Delhi
8. Robert .M. Devlin and Francis H. Witham 1986. *Plant Physiology*. 4th Edn. CBS Publishers and Distributors New Delhi.
9. Singh,S.S.2011. *Soil Fertility andNutrient Management*.3rd Edn. Kalyani Publishers.New Delhi
10. Tisdale,S.L., Nelson,W.L.,Beaton, J.D. and Havlin,J.L. 1995. *Soil Fertility and Fertilisers*. 5th Edn. Macmillan publishing company, USA.

11. *Fundamentals of Soil Science*. Published by Indian Society of Soil Science, IARI New Delhi, 2002

Ento 2101	Fundamentals of Entomology	3 (2+1)
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Theory

Definition and scope of Agricultural Entomology. History of Entomology in India. Insects in relation to man. Economic classification of insects. Dominance of insects.

External Morphology: Structure and functions of integument. Structure of head, thorax and abdomen. Body appendages (including genitalia) and their modifications.

Anatomy and General Physiology.

Development: Embryonic and post embryonic development. Types of metamorphosis. Types of immature stages.

Role of taxonomy in pest management. ICZN. Insects and their allies.

Practical

Methods of collection and preservation of Insects. Type of insects antennae, mouth parts and legs, wing venation, types of wings and wing coupling apparatus. Types of insect larvae and pupae. Collection of insects specimens of important families and orders.

Suggested Readings

1. Champman, R. F. 1980. *The Insect – Structure and Function* – English Language Book Society, London. 819 p.
2. Nair, K. K., Ananthakrishnan, T. N. and David, B. V. 1979. *General and Applied Entomology*. Tata Mc Graw Hill Publishing Co. New Delhi. 589 p.
3. Pant, N. C. and Ghai, S. 1973. *Insects Physiology and Anatomy*. I CA R. New Delhi. 332 p.
4. Richards, O. W. and Davies, R. G. 1977. *Imms General Textbook of Entomology Vol. I* Chapman and Hall, London. 405 p.
5. Richards, O. W. and Davies, R. G. 1977. *Imms General Textbook of Entomology. Vol. II* Chapman and Hall, London.

Ento 2202	Pests of Crops and their Management	3 (2+1)
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Theory

Nature and symptoms of damage and management strategies of major insect pests of Field crops: rice, wheat, maize, sorghum, ragi, sugarcane, cotton and oil seeds – groundnut, sesamum, castor, sunflower and mustard.

Vegetable crops: solanaceous vegetables – brinjal, chilli, tomato, cucurbitaceous vegetables- bittergourd, snake gourd, cucumber & pumpkin. Cruciferous vegetables – cabbage and cauliflower; bhindi, cowpea, amaranthus, moringa and curry leaf, polyhouse vegetables; Tuber crops: tapioca, sweet potato, yam; Fruit crops: banana, mango, jack, papaya, pineapple, citrus, guava, pomegranate, sapota, apple and grape vine.

Practical

Identification of Pests of important field crops, oil seed crops, vegetables, fruit crops and tuber crops and study of the symptoms

Suggested Readings

1. David, B.V and Ramamurthy, V.V 2011. Elements of Economic Entomology. Namrutha Publications, Chennai.
2. Fletcher, T. B. 1975. Agricultural Insect Pests of Tropics and their control. Cambridge University Press, London.
3. Lefroy, H. M. 1909. Indian Insect Life. Thacker, Spink and co. Calcutta
4. Nair, M. R. G. K. 1989. A Monograph on crop Pests of Kerala and Their Control. 2nd Edn. Kerala Agrl. University Press, Mannuthy
5. Srivastava, K.P. 1993. A text book of Applied Entomology Vol II. Kalyani Publications , Ludhiana, Chennai, New Delhi

Path 1201	Fundamentals of Plant Pathology	3 (2+1)
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Theory

Plant pathology- Importance of plant diseases- Definition- Objectives- History of Plant Pathology- Terminologies in plant pathology- Important plant pathogenic organisms with examples of disease caused by them. Diseases due to abiotic causes. Causes/ factors affecting disease development. Parasitism, Variability of plant pathogens. Defense mechanism in plants. Pathogenesis. Role in disease development- Enzymes, Toxins, Growth regulators.

Practical

Acquaintance with various laboratory equipments and microscopy. Collection and preservation of disease specimen. General study of different structures of fungi. study of symptoms of various plant diseases. Study of morphological features and identification of plant parasitic nematodes. Study of fungicides and their formulations. Methods of pesticide applications and their safe use.

Suggested Readings

1. Agrios, G.N. 2005. Plant Pathology. (5th edition). Elsevier Academic Press. 882pp.
2. Alexopoulos, C.J., Mims, C.W. and Blackwell, M. 2014. Introductory Mycology (4th edition) Wiley India Pvt Ltd. 833p
3. Ravichandra, N.G. 2013. Fundamentals of Plant Pathology. PHI Learning Pvt Ltd. 639pp.
4. Jayaraman, J. and Verma, J. P. 2002. *Fundamentals of Plant Bacteriology* (Reprint, 2015). Kalyani publishers, New Delhi
5. Webster, J. and Weber, R. W. S. 2007. Introduction to fungi. (3rd edition). Cambridge University press. 817 pp.

Path 2202	Diseases of Crops & their Management	3 (2+1)
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Theory

Categories of diseases; Introduction, history, importance, concepts, principles and tools of IDM; Economic importance of diseases risk analysis. Epidemiology: Factors affecting disease development. Methods of detection and diagnosis of diseases. Diseases of important crops and their control. Principles and methods of plant disease management. Methods of control. Safety issues in pesticide uses. Political, social and legal implication of IDM. Case histories of important IDM

programmes in cereals, vegetables, pulses , tuber crops, spices and plantation crops and ornamentals.

Practical

Identification of important crop diseases and study the symptoms

Suggested Readings

1. Agrios, G.N. 2005..*Plant Pathology* Academy Press. New York.
2. Gupta, G.P. 2004. *Text Book of Plant Diseases*.Discovery Publishing House. New Delhi
3. Gupta V. K. and .SharmaR.C2011.*Integrated Disease Management and Plant Health*.Scientific Publishers
4. Prakasam,V. Reguchander,T. and Prabakar,K. 1998. *Plant diseases management*. A.E. Publication, Coimbatore.
5. Singh. R.S 2002. *Introduction to Principles of Plant Pathology*. Oxford and IBH Publishing, New Delhi.

Hort 1101

Fundamentals of Horticulture

2 (1+1)

Theory

Horticulture - definition, evolution, art, science, vocation, hobby, etc - importance, divisions, classification of crops; Commercial orchards, garden and plantations – selection of site for crops - climate, soil, socio-economic factors; Orchard planning, layout, peg marking, planting systems, spacing, digging pits, age of planting materials, after care, inter cropping, mixed cropping, etc; Tree forms and functions training and pruning in horticultural crops, principles and methods. Techniques of training and pruning – root pruning, girdling, ringing, notching, smudging, and bending, thinning - chemical and mechanical; Phases of growth and development - vegetative/ reproductive balance; flowering, bearing habit and its classification; Fruit set - carbon nitrogen relation, structure and process in relation to set and drop, factors affecting and measures to overcome drop; Problems of unfruitfulness - internal factors, external factors – measures to overcome; seedlessness in horticultural crops - significance and induction; Plant growth regulators in horticulture - natural and synthetic regulators - preparation and methods of application

Plant propagation - definition and basic concepts, types - advantages and disadvantages, Potting and repotting - objectives and uses, containers and potting media/ mixture - kinds, qualities, pre-planting treatments; Propagation by seed - seed qualities, seed testing, seed germination - types of seed dormancy, pre-sowing treatments – factors affecting germination. Asexual propagation - apomixis, polyembryony, plant modifications for vegetative propagation - bud sports, chimeras; Propagation by cuttings - types of cuttings - factors affecting rooting of cuttings; Propagation by layering - advantages and disadvantages -types of layering; Propagation by grafting - advantages and disadvantages, stock - scion relationships, incompatibility; Grafting and budding - methods - advantages and disadvantages - separation and after care; Plant propagating structures - green house/ glass house, hot bed, cold frame, lath house, net house, mist chamber; Nursery - site selection, lay-out, components, progeny orchards, sales unit, display area, management, maintenance, commercial propagation of selected horticultural plants; Micro propagation of horticultural plants - definition, principles, methods, advantages and disadvantages, field of application in horticultural crops.

Practical

Practice in propagation of plants through seeds. Familiarization with media , implements and containers for plant propagation. Studies on seed testing, certification and storage. Practice in rootstock production, vegetative propagation methods – cutting, budding, grafting layering etc. separation of propagules. Use of growth regulators for plant propagation. Study of propagation through tissue culture. Studies on preparation of designs and estimates for establishment of plant propagation unit, plant growing structures and tissue culture unit. Identification of common pests and diseases in nursery plants and their control. Visit to different types of nurseries, selection of site and layout– Familiarization with components of nurseries– handling, display and sales of plants – cultural practices – Estimation of production costs for different kinds of planting materials. Practice of potting /bagging, re-potting etc. Packing and transport of nursery materials. Practice in tissue culture laboratory. Registers to be maintained in a commercial nursery. Visit to different nurseries (both government and private).

Suggested Readings

1. Bose, TK., Mitra, SK. and Sadhu, K. 1986. *Propagation of Tropical and Subtropical Horticultural crops*. Naya Prokash, Calcutta..
2. Jitendra Singh. 2002. *Basic Horticulture*, Kalyani Publishers.
3. Kumar, N. 1990. *Introduction to Horticulture*, Rajalekshmi Publication, Nagercoil.
4. Peter, K. V. *Basics of Horticulture*. New India Publishing Agency, New Delhi.
5. Sheela, V.L. 2011. *Horticulture*. MJP Publishers, Chennai.

Hort 3102 Standardization, Grading and Quality Control in Crop Produce 2(1+1)

Theory

Meaning and definition of grading, sorting and standardization. sorting- type of sorters and graders used for agricultural crops, size graders, mass grader, colour sorter, specific gravity separator, length grader, etc. Role of grading and sorting in agricultural products. Criteria for grade standards, advantages of grading. Types of grading. The agricultural produce (Grading and Marking) Act, 1937. Standardization and Grading as per AGMARK, FPO, BIS, ISO, HACCP, Eurepgap, CODEX, Eco-mark. General characteristics and grade designations for crops as per different methods: Food grains- rice, wheat, red gram, bengal gram, black gram, green gram; Oilseeds - groundnut, Spices: pepper, cardamom, Commercial crops - areca nut, cashew, copra. Grading of Fruit and Fruit Products. General characteristics and grade designations of processed foods, fruit and vegetable products.

Practical

Identification of laboratory equipments: sampling equipments, grading and sorting instruments used for fruits, vegetables, grains- based on physical, and engineering properties. Estimation of quality characters of cereals such as rice, wheat, etc; pulses such as tur; oil seeds such as ground nut; commercial crops such as cashew, arecanut, copra; and spices such as pepper and cardamom, fruits and vegetables. Estimation of quality characters of ready to eat foods. Visit to APMC to study the eye-sight grading at field conditions of important crops. Visit to Grading Laboratory

Suggested Readings

1. Devraj, Sharma R., and Joshi, V. 2011. *Quality Control for Value Addition in Food Products*. New India Publishing Agency, New Delhi.

2. Agarwal,N.L. and Acharya,S.S . 2012. Agricultural Marketing in India,Oxford and IBH Publishing Co.Pvt. Ltd, New Delhi.
3. L.D.H. Weld. 2011.Inspection and Grading of Agricultural Produce - With Information on Weights, Standardisation and Grades, Coss pressing, Delhi.
4. Rane.A.A, and Deorukhkar A.C.2007.Economics of Agriculture ,Atlantic publishers and Distributors, Ansari Road ,New Delhi.
5. Multon,J.l. 1995.Quality control for food and agricultural products..Wiley publishers , Ansari Road ,New Delhi.
6. Kumar,A.2001.Finacing And Commercialization Of Indian Agriculture.Sarup and sons ,New Delhi
7. EIRI consultants and engineers .Agro -based and proceeds food products .Engineers India Research Instutute, New Delhi

Extn1202 Fundamentals of Agricultural Extension Education and Rural Development 3(2+1)

Theory

Education: Meaning, definition & Types; Extension Education- meaning, definition, scope and process; objectives and principles of Extension Education; Extension Programme planning-Meaning, Process, Principles and Steps in Programme Development. Extension systems in India: extension efforts in pre-independence era (Sriniketan, Marthandam, Firka Development Scheme, Gurgaon Experiment, etc.) and post-independence era (Etawah Pilot Project, Nilokheri Experiment, etc.); various extension/ agriculture development programmes launched by ICAR/ Govt. of India (IADP, IAAP, HYVP, KVK, IVLP, ORP, ND,NATP, NAIP, etc.). New trends in agriculture extension: privatization extension, cyber extension/ e-extension, market-led extension, farmer-led extension, expert systems, etc.

Rural Development: concept, meaning, definition; various rural development programmes launched by Govt. of India. Community Dev.-meaning, definition, concept & principles, Philosophy of C.D. Rural Leadership: concept and definition, types of leaders in rural context; extension administration: meaning and concept, principles and functions. Monitoring and evaluation: concept and definition, monitoring and evaluation of extension programmes; transfer of technology: concept and models, capacity building of extension personnel; Extension teaching methods: meaning, classification, individual, group and mass contact methods,

Practical

To get acquainted with university extension system. Group discussion- exercise; handling and use of audio visual equipments and digital camera and LCD projector; preparation and use of AV aids, preparation of extension literature – leaflet, booklet, folder, pamphlet news stories and success stories; Presentation skills exercise; micro teaching exercise; A visit to village to understand the problems being encountered by the villagers/ farmers; to study organization and functioning of DRDA and other development departments at district level; visit to NGO and learning from their experience in rural development; understanding PRA techniques and their application in village development planning; exposure to mass media: visit to community radio and television studio for understanding the process of programme production; script writing, writing for print and electronic media, developing script for radio and television.

Suggested Readings

1. De, Dipak, 2011 A handbook of Extension education, JV Publishing House, Jodhpur

2. Govind, S and Tamil Selvi.G(2011) Extension Education and Rural Development, JV publishing House, Jodhpur
3. Gupta, D.D 2011 Extension Education-Core contents and Emerging areas: JV Publishing House, Jodhpur
4. Ray,G.L. 2006 Extension communication and Management, New Delhi, Kalyani Publishers
5. Vasanth Kumar, J. 2007 New Dimensions and approaches in Extension Pluralism for Rural Development, J.V., Publishing House, Jodhpur.

Extn 3203	Rural Sociology & Educational Psychology	2 (2+0)
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Theory

Sociology and Rural sociology: Definition and scope, its significance in agriculture extension, Social Ecology, Rural society, Social Groups, Social Stratification, Culture concept, Social Institution, Social Change & Development. Educational psychology: Meaning & its importance in agriculture extension. Behavior: Cognitive, affective, psychomotor domain, Personality, Learning, Motivation, Theories of Motivation, Intelligence.

Suggested Readings

1. Reddy, A.A . 1987 Extension Education. Sree Lakshmi Press, Bapatla.
2. Samanta, R.K. and Arora,S.K. (Eds) 1997. An introduction to sociology. Kitab Mahal.S.D., Pvt.Ltd. Allahabad
3. Samanta,R.K. and Arora,S.K. (Eds) 1997. Management of Agricultural Extension in global Perspectives. B.R. Publishing Corporation. New Delhi.
4. Sharma,R.N.1975 Introductory Sociology. Rajhans Prakashan mandir, Meerut.
5. Woliman,B.B. 1973. Hand Book of General Psychology. Prentice Hall, Englewood, New Jersey.

Micr 3201	Agricultural Microbiology	3(2+1)
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Theory

History of Microbiology: Spontaneous generation theory, Role of microbes in fermentation, Applied areas of Microbiology. Bacteriophages: structure and properties of Bacterial viruses. Soil Microbiology: Microbial groups in soil, microbial transformations of carbon, nitrogen, phosphorus and sulphur, Biological nitrogen fixation. Microflora of Rhizosphere and Phyllosphere microflora, microbes in composting. Microbiology of Water. Microbiology of food: microbial spoilage and principles of food preservation. Beneficial microorganisms in Agriculture: Biofertilizer (Bacterial Cyanobacterial and Fungal), microbial insecticides, Microbial agents for control of Plant diseases, Biodegradation, Biogas production, Biodegradable plastics, Plant – Microbe interactions.

Practical

General instructions, Familiarization with instruments, materials, glassware etc. in a microbiology laboratory : Methods of Sterilization and Preparation of media. Familiarisation with bio-fertilizer, microbial insecticides and microbial agents for plant disease control.

Suggested Readings

1. Pelczar, M.J., Chan, E.C.S. and Kreig, N.R. 1993. *Microbiology*. Tata McGraw Hill Publishing Co., Ltd., New Delhi.
2. Tauro, P., Kapoor, K.K. and Yadav, K.S. 1989. *An Introduction to Microbiology*. Wiley Publications, New Delhi.
3. Subba Rao, N.S. 1999. *Biofertilizers in Agricultural and Agroforestry*. Oxford & IBH, New Delhi.
4. Subba Rao, N.S. 1995. *Soil Microorganisms and Plant Growth*. Oxford & IBH, New Delhi.

AGRI-ALLIED SCIENCES

Engg 2101

Farm Machinery and Hi-tech Agriculture

3(2+1)

Theory

Tractor types, cost analysis of tractor power and attached implements. Familiarization with primary and secondary tillage implements, implements for hill agriculture, implements of intercultural operations. Familiarization with sowing and planting equipments, calibration of a seed drill. Familiarization with Plant protection equipments. Familiarization with harvesting and threshing equipments. Familiarization with cleaning, drying equipments, Familiarization with storage methods.

Green house technology- Introduction, types of Green Houses; Plant response to Green house environment, Site selection, planning and design criteria of greenhouses, Green house equipment, materials of construction for traditional and low cost green houses. Irrigation systems used in green houses; passive solar green house, hot air green house heating systems, green house drying. Cost estimation and economic analysis.

Micro irrigation techniques and drip fertigation.

Practical

Familiarization with operation of power tiller- Implements for hill agriculture, Familiarization with different types of primary tillage implements: mould plough, disc plough, subsoiler, and chisel plough. Familiarization with different types of secondary tillage implements harrows, cultivators and rotavators. Familiarization with seed-cum-fertilizer drills their seed metering mechanism. Planters and transplanter, Familiarization with plant protection equipments- different types of sprayers and dusters, Familiarization with different inter-cultivation equipment. Familiarization with harvesting and threshing machinery.

Different types of green houses. Design and estimation of green house, Irrigation equipments in green houses, growing media used in raising of greenhouse crops, Visit to green house- Familiarization with different irrigation methods, cleaners, graders, and driers- components and efficiencies. Storage structures.

Suggested Readings

1. Ojha, T.P. and A.M. Michael. Principles of Agricultural Engineering, Vol.I. Jain Brothers New Delhi.
2. Sahay, Jagdiswar. Elements of Agricultural Engineering. Agro book Agencies
3. Singhal, O.P. Agricultural Engineering
4. Sanjay Kumar, Vishal Kumar and Ram Kumar Sahu. 2016. Fundamentals of Agricultural Engineering, Kalyani Publishers, New Delhi.

Theory

Role of livestock in the national economy. Reproduction in farm animals and poultry. Housing principles, space requirements for different species of livestock and poultry. Management of calves, growing heifers and milch animals. Management of sheep, goat and swine. Incubation, hatching and brooding. Management of growers and layers. Important Indian and exotic breeds of cattle, buffalo, sheep, goat, swine and poultry. 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. Introduction of livestock and poultry diseases. Prevention (including vaccination schedule) and control of important diseases of livestock and poultry.

Practical

External body parts of cattle, buffalo, sheep, goat, swine and poultry. Handling and restraining of livestock. Identification methods of farm animals and poultry. Visit to IDF and IPF to study breeds of livestock and poultry and daily routine farm operations and farm records. Judging of cattle, buffalo and poultry. Culling of livestock and poultry. Planning and layout of housing for different types of livestock. Computation of rations for livestock. Formulation of concentrate mixtures. Clean milk production, milking methods. Hatchery operations, incubation and hatching equipments. Management of chicks, growers and layers. Debeaking, dusting and vaccination. Economics of cattle, buffalo, sheep, goat, swine and poultry production.

Suggested Readings

1. Dhama.P.S. 2011. Handbook of Animal Husbandry. Indian Council of Agricultural Research, New Delhi.
2. G.C.Banerjee 2008. A Text Book of Animal Husbandry. Oxford & IBH Publishing Co, New Delhi.
3. N.S.R.Sastry, C.K.Thomas 2004. Livestock Production Management, Kalyani Publishers, New Delhi.
4. Earl N Moore, Harbans Singh 1978. Livestock and Poultry Production, Prentice-Hall of India, New Delhi.

Theory

Aquaculture – definition, objectives of aquaculture, aquaculture for rural development. Introduction to principles of aquaculture – definition and concept – food chain and food web. Natural productivity – pre-stocking and post-stocking management. Classification of aquaculture system – definition and concept. Criteria for selection of species – important aquaculture species in India. Ornamental fish. Role of extension agencies in aquaculture development. Commercially important fishes and shell fishes. Transportation and preservation of fish by icing. Freezing of fish –principle and generation methods. Principle and method of canning fish. Miscellaneous fishery products. Quality of fish products for external and internal trade. Introduction of fish marketing. Co-operative marketing of fish -role of MATSYAFED. Export of marine products – role of MPEDA

Practical

Identification of important aquaculture species. Layout of fish farm. Preparation of aquaculture projects. Economic analysis of fish culture operation. Visit to fish farm and hatcheries. Discussing styles of fish. Fish processing equipments. Lay out of processing plants. Visit to fishing harbor. Visit to fish market. Visit to processing plants. Familiarization of miscellaneous fishery products. Visit to MPEDA. Visit to EIA.

Suggested Readings

1. Peter B. Moyle and Joseph J.Cech. 2003. Fishes:An introduction to Ichthyology. PearsonPublications, Delhi
2. R.Santhanam 1990 A Manual of fresh water aquaculture. Oxford and IBH publications, Delhi
3. B.F. Chhapgar. 2008. Fishes of India. OUP india Publication, Noida
4. T.V.R Pillay and M.N.Kutty. 2011. Aquaculture-Principles and Practices. Wiley India Pvt Ltd, Delhi.
5. Hall and George, M. 2017. Fish processing technology. Springer Publications, Delhi.
6. Gopakumar, K. 2002. Textbook of fish processing technology. Indian Council of Agricultural Research, Delhi.

Fors 2201

Introduction to Forestry

1 (1+0)

Theory

Introduction – definitions of basic terms related to forestry, objectives of silviculture, forest classification, salient features of Indian Forest Policies. Forest regeneration, Natural regeneration - natural regeneration from seed and vegetative parts, coppicing, pollarding, root suckers; Artificial regeneration – objectives, choice between natural and artificial regeneration, essential preliminary considerations. Crown classification. Tending operations – weeding, cleaning, thinning – mechanical, ordinary, crown and advance thinning. Forest mensuration – objectives, diameter measurement, instruments used in diameter measurement; Non instrumental methods of height measurement - shadow and single pole method; Instrumental methods of height measurement - geometric and trigonometric principles, instruments used in height measurement; tree stem form, form factor, form quotient, measurement of volume of felled and standing trees, age determination of trees. Agroforestry – definitions, importance, criteria of selection of trees in agroforestry, different agroforestry systems prevalent in the country, shifting cultivation, taungya, alley cropping, wind breaks and shelter belts, home gardens. Cultivation practices of two important fast growing tree species of the region.

Suggested Readings

1. Banerjee, G.C. 1998. The Text Book of Animal Husbandry. Oxford and IBH Publishing 1998. CALCUTTA
2. ICAR, 2001. A Hand Book of Animal Husbandry.
3. Indian Poultry Industry Year Book 1998. A25 Priyadarshini Vihar, DELHI.
4. Sharma. R.P, Chatterjee, R.N., Rama Rao, S.V. and Sharma. S.R, 2008. Poultry production in India. Directorate of Information and Publication of Agriculture, Indian Council of Agriculture Research, New Delhi.
5. Watter, H.P. and Robert, H.G, 2001. Livestock Production. Green World Publications, Indira Nagar, Lucknow.

QUANTITATIVE TECHNIQUES

Agst 1202

Statistical Methods

3 (2+1)

Theory

Definition of Statistics - methods of data collection, Classification and tabulation of data-Frequency distribution –Graphical representation of data.

Measures of central tendency – Arithmetic, Geometric and Harmonic means. Median and Mode-their properties and relative merits and demerits.

Measures of dispersion - Range, inter quartile range, quartile deviation mean absolute deviation, standard deviation and coefficient of variation, their properties and merits and demerits. Lorentz curve and Gini's ratio

Measures of Shape – Skewness and kurtosis

Correlation – Scatter diagram, product moment correlation coefficient, rank correlation coefficient

Regression – linear regression involving two variables – fitting of regression coefficient, coefficient of determination.

Probability – Random experiments, Classical, Statistical and Axiomatic definition of probability.

Addition and Multiplication theorems. Conditional Probability. Inverse probability – Bay's theorem.

Random variables -Discrete and continuous

Probability distributions – Binomial, Poisson, Normal and standard normal distributions- their properties

Practical

Business and Managerial applications

Suggested Readings

1. Goon A.M. Gupta M.K. and Dasgupta B 1993. *Fundamental of Statistics* Vol. I. Word Press Pvt. Ltd, Calcutta
2. Levin R.L.and. Rubin D.S. 1994, *Statistics for management*, Prentice-Hall. New Delhi 1030P
3. Nagar A.L and Das, R.K. 1990. *Basic Statistics*, Oxford University Press, Delhi.424P
4. Varsha Varde 1979, *Reference book on Statistical Methods,(with illustration)* .National Institute of Bank Management,Bombay .317P
5. Wright D.B. 1997 *Understanding Statistics: An Introduction to Social Sciences*, Sage, London

Agst 3103

Quantitative Techniques for Agri-Business

3 (2+1)

Theory

Elements of sample survey, probability and non-probability sampling. Various methods of sampling – SRS, Stratified, systematic, cluster and multistage sampling-Use of Random number tables for the selection of random samples- sampling and non-sampling errors.

Testing of hypotheses - general principles, parametric tests; large and small samples tests-Z, t, χ^2 and F tests

Time series analysis, components of time series – secular, seasonal, cyclical and irregular variation – their measurements, index numbers – it's construction.

Linear Programming - graphical and simplex methods.

Statistical Quality Control – Statistical Process Control – different types of Control charts,

Practical

Business and Managerial Applications

Suggested Readings

1. Goon A.M. Gupta M.K. and Dasgupta B 1993. *Fundamental of Statistics* Vol . II. World Press Pvt. Ltd, Calcutta
2. Levin R.L.and. Rubin D.S. 1994, *Statistics for management*, Prentice-Hall. New Delhi 1030 P
3. G.V. Shenoy, 1989, Linear Programming, Wiley Eastern.
4. Varsha Varde 1979, *Reference book on Statistical Methods,(with Illustration)* .National Institute of Bank Management,Bombay .317P
5. Grant E.L. and Leavenworth R.S. 1996 *Statistical quality control*. McGraw-Hill New York. 764P

COMPUTER APPLICATIONS

Comp 2101

Computer Applications for Agribusiness

2 (1+1)

Theory

IT and its importance. IT tools, Basic Concepts; Introduction to application software - Word Processors, Spreadsheets, Presentation Software, Image Processing Software, principles of programming- algorithms and flowcharts, Cloud computing and its applications, Artificial intelligence, Computer Networking; Network Topology-Bus, Ring, Star, Mesh and Tree, Network Devices- Network Hub, Network Switch, Modem, Network Router, Network Cabling, Local area network (LAN), Wide area network (WAN), Wi-Fi, Web programming- HTML, PHP, MYSQL, Internet security, E-Commerce Models , Agricultural Portals, Recent developments in IT.

Practical

Text processing - Creating Text, text processing, Editing features, block operations.

Text processing - search and replace, spell check, math operations.

Table creation, merging cells, Applying formulas to cells.

Mail merge- Creation of document, data source, label creation.

Statistical Analysis using EXCEL: Find Mean, Median , Mode Variance, Standard deviation. Creation of graphs- Line, Bar, Scatter, Pie diagram.

Finding Correlation Coefficient, Regression. Filter Commands- sorting, Multiple sorting, PIVOT TABLE REPORT. Finding NPV & IRR, Database operation in EXCEL.

Finding Break Even Point using graphical method, Annual growth rate using EXCEL

Preparation of Presentation using POWER POINT.

Creation of graphs using a graphics package.

Case study of client Server Computing, cloud Computing and Artificial Intelligence.

Internet features, Multimedia.

Web Page Designing using HTML, PHP, MYSQL

Suggested Readings

1. Fundamentals of Computers, Rajaraman V. 4th ed. PHI .
2. Introduction to Computers Peter Norton 6th ed. (Special Indian Edition) Mc. Graw Hill Company.
2. Ms-Office course Complete Book for learning Better and faster, Prof Satish Jain, Kratika, M. Geetha, BPB Publication.
3. Web Technology Dr. Shruti Kohli BPB Publications.
4. PHP and MYSQL Web Development/. 5th ed. By Pearson Education Inc. Luke Welling, Laura Thomson.

Comp 2202	Agri- Informatics	2 (1+1)
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Theory

Database Management Systems, Introduction to Data Warehousing-, Data Mining, Agricultural Information systems, Use of ICT in agriculture, Computer Models for understanding plant processes, Geospatial technology for generating valuable agri-information, Agricultural Expert systems, Knowledge Management systems, IT in Agricultural Production, IT in Agricultural Research Management, IT in Agricultural Extension Management, Agri-business: Agri-marketing, Smart Phone Apps in Agriculture, SPSS- Analysis of agricultural data using SPSS

Practical

Database Management System: ACCESS : Creation of a database, File, Table, Fields, Type, Width etc., Primary key and Secondary key.

Data Mining using Data Mining Tools.

Familiarization with Agri-informatics Tools.

Use of GIS in agriculture, Map creation

Global Positioning System- Uses and applications in agriculture

Knowledge Management: Case studies

E-Learning - Case studies

Agricultural Databases and its uses - Case studies

Agricultural Expert systems : Need and issues- Case studies

Research Management Information Systems - Case studies

Agricultural Extension Management: - Case studies.

Smartphone Apps in Agriculture- Case studies

Analysis of data using SPSS

Suggested Readings

1. ACCESS 2002 from A to Z, Julia Kelly, Stephen L. Nelson, BPB Publications.
2. Data Mining Techniques , Arun K Pujari by Orient Blackswan /Universities Press 2010.
3. A Handbook on SPSS for Research work, Anil Kumar Mishra, Himalaya Publishing House.
4. Statistical Methods for research- A step by step approach using IBM SPSS., K. Kayanaraman,, Hareesh N. Ramanathan, P.N. Harikumar, ATLANTIC

ELECTIVE COURSES

Cmgt2206

Agri-Business Management

3(2+1)

Theory

Agri-business-Concept and definition. Distinction between agriculture and agribusiness, Concept of agri-business management. Agri-business ecosystem: Export Promotion Councils, APEDA, MPEDA, MOFPI, Commodity Boards, Small Farmers' Agri-business Consortium (SFAC), APMC, MSME, Food Safety and Standards Authority of India, Agricultural Costs and Prices Commission, Subsidies : food, fertilizers and fuel, Public Policy relating to import and export of agricultural commodities, Agricultural Commodity Value Chains. Agri-business Enterprises: fertilizer industry, crop protection materials industry, seed industry, farm machinery industry, food and agro processing industries, agri-finance and insurance institutions.

Practical

Case studies of Private, Public, Co-operative Agri-business enterprises.

Suggested Readings

1. David D. Van Fleet and George J. Seperich.2013. *Agribusiness: Principles of Management*. Delmar, New York.
2. Elizabeth Yeager, Frank J. Dooley, Freddie L. Barnard, Jay T. Akridge, and John Charles Foltz. 2012. *Agribusiness Management*. Routledge, London.
3. Walter David Downey.1987. *Agribusiness Management*. Tata McGraw-Hill, New Delhi.
4. Hegde.P. 2012. *Agribusiness Management*. Discovery Publishing House, New Delhi.
5. Karthikeyan,M. and Nakkiran, S. 2012. *Co-operatives & Agri-Business*. Discovery Publishing House, New Delhi.
6. *Journal of Agri-Business in Developing & Emerging Economies*, Emerald.
7. *American Journal of Agricultural Economics*, AAEA.

Cmgt3109

Social Entrepreneurship

3(2+1)

Theory

Social Entrepreneurship : concept, meaning, definition, characteristics and principles. Third Sector Organizations (TSOs) and social enterprises. Similarities and differences with other forms of enterprises. Historical perspective of social entrepreneurship. Characteristics of social entrepreneurs. Organisation of social enterprise. Financing of social enterprise. Legal compliance and management of resistance. Management: strategy, finance, HRM and marketing. Governance. governance challenges-accountability, transparency and democracy. Measurement of social outcomes & impact, social accounting, social return on investment. Innovations in social enterprises, models: success & Failure.

Practical

Case studies on organisation, financing and impact measurement of social enterprises.

Suggested Readings

1. David Bornstein. 2007. *How to Change the World: Social Entrepreneurs and the Power of New Ideas*. Oxford University Press, New York.
2. Muhammad Yunus. 2010. *Building Social Business: The New Kind of Capitalism that Serves Humanity's Most Pressing Needs*. Public Affairs, New York.
3. David Bornstein and Susan Davis. 2010. *Social Entrepreneurship: What Everyone Needs to Know*. Oxford University Press, New York.
4. Ryszard Praszkiar and Andrzej Nowak. 2011. *Social Entrepreneurship: Theory and Practice*. Cambridge University Press, Cambridge.
5. Bob Doherty, George Foster & Chris Mason. 2009. *Management for Social Enterprise*. Sage Publications, USA.
6. *Journal of Social Entrepreneurship*, Taylor & Francis.
7. *International Journal of Social Entrepreneurship & Innovation*, Inderscience.

Cmgt 3212

Corporate Social Responsibility

3(2+1)

Theory

Corporate Social Responsibility (CSR): Concept, theory, principles, guidelines and benefits. CSR and sustainability. CSR Global context. CSR in India. Section 135 of Companies Act 2013. Planning and Strategizing for CSR : Developing a CSR strategy and Policy, Operationalising the institutional mechanism, Due diligence of the implementation partner, Project development, Project approval, Finalizing the arrangement with the implementing agency, Project implementation, Progress monitoring and reporting, Impact measurement- corporate social performance, social accountability, social audit, Triple Bottom Line-Economic Prosperity, Environmental Quality, Social Justice, corporate social financial performance, Report consolidation and communication.

Practical

Exercise on identification of appropriate legal entity for CSR. Preparation of suitable CSR projects at micro level. Impact measurement of CSR activities. Case studies on successful CSR models in India.

Suggested Readings

1. Paul Hohnen and Jason Potts. 2007. *Corporate Social Responsibility- An Implementation Guide for Business*. International Institute for Sustainable Development, Manitoba.
2. Confederation of Indian Industry. 2013. *Handbook on Corporate Social Responsibility in India*, PwC India, Gurgaon.
3. Philip Kotler and Nancy Lee. 2005. *Corporate Social Responsibility: Doing the Most Good for Your Company and Your Cause*. Wiley India Pvt. Ltd, New Delhi.
4. Deborah Leipziger. 2011. *The Corporate Responsibility Code Book*. Viva books Pvt.Ltd, New Delhi
5. Sage Brief Guide to Corporate Social Responsibility. 2012. Sage Publications, USA .
6. *International Journal of Corporate Social Responsibility*, Springer Open.
Social Responsibility Journal, Emerald

Theory

Meaning and definition of research: classification of research, importance, applications, limitations of social science research, information -communication technology in research, basic elements of the scientific method, theory and research, the meaning of methodology. Research problem and design: steps in research process, selection of the topic and formulation of the research designs for exploratory, descriptive, diagnostic and experimental research. Participatory Research Methods- PRA tools& techniques. Data Collection and analysis: Sampling design, types. Methods of collecting primary data: questionnaire and schedules, sources of secondary data on Indian economy, case study method, processing of data. Hypothesis: sources testing of hypothesis. Interpretation, drawing conclusions and reporting it-Structure of the research report- Types of reports- Methods of footnotes and referencing. Introduction to library and information services; role of libraries in education; Sources of information-primary, secondary and tertiary sources; Cataloguing, OPAC, Web OPAC, Union Catalogue, Familiarizing computerized library operations, Major data bases in agriculture, management and economics.

Practical

Preparation of mini research reports, Study of already completed projects, Identification research problem based on relevant literature, Development of research proposal, Preparation of schedules and questionnaire, Data collection and sample survey, coding and tabulation of data Analysis and interpretation of data.

Suggested Readings

1. William J. Goode and Paul K .Hatt, 1981. Methods in Social Research. McGrawHill.
2. Pauline V. Young, 1950. Scientific Social Surveys and Research. Prentice Hall India Pvt Ltd.
3. C. R. Kothari, 2013. Research Methodology: Methods and Techniques,New Age International.
4. W. Lawrence Neuman, 2006. Social Research Methods. Quantitative and Qualitative Approaches. Pearson.
5. Wilkinson and Bhandarkar, 2002 . Methodology and Techniques of Social Research. Himalaya Publishing House.
6. Modern Language, 2009. The MLA Handbook for Writers of Association of America. Research Papers.

Theory

Agricultural trade and trade policies prior to World Trade Agreement. Introduction to the Agreement on Agriculture, Relationship with other WTO Agreements - Product coverage - rules and commitments ,Implementation period, Committee on Agriculture. Trade in agriculture under WTO Regime. Market access: conceptual framework - schedule of tariff concessions and tariff quota commitments. The prohibition of non-tariff border measures - special treatment. The special safeguard provisions - notification obligations. Agreement on Agriculture, and Intellectual Property Right issues. Domestic support - The conceptual framework - The green box, Government service programmes - direct payments to producers - other exempt measures - developmental measures - Blue box - "De minimis" - reduction commitments - aggregate measurement of support - equivalent measure of support, notification obligations Export subsidies - The conceptual framework -

reduction commitments – definition. Implications of AOA on India’s agricultural development and trade.

Practical

Trends in demand and supply of agricultural commodities, analysis of price volatility of important agricultural commodity of India and Kerala, integration of International and domestic prices, analysis of impact of WTO on import and export of important crops of India and Kerala vizz., global trade.

Suggested Readings

1. Vibha Mathur, 2003. India: Foreign Trade Policy and WTO, Sage publishers, New Delhi
2. Sodersten, 1972. “International Economics. McMillan Publishers, London.
3. Dominick Salvatore, 2001. International Economics. John Wiley and sons, New York.
4. Dubay, M. 1996. An Unequal Treaty. New Age International Publishers, New Delhi.
5. G. K. Chandha 2002. WTO and Indian Economy. Sage Publications, New Delhi.
6. Bhagwati, 2000. Lectures on international Trade Sage Publications , New Delhi.
7. WTO, 2016 .The WTO Agreements Series Agriculture. (Third Ed), Geneva.
8. Trade and Developments Reports.

Econ 3211	Gender Economics	3 (2+1)
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Theory

Introduction to Gender Studies Concepts of gender and sex- Felinity and masculinity-importance of women studies, Patrilineal and matrilineal systems and its relevance to present Indian society- Demography of female population in India-Age structure, mortality rates-Inter-state variations in sex ratio, Causes of declining sex ratio- Measurement of fertility and its control-UNDP’s gender related measures. Tools of Women Empowerment Women and education- GER ratio in India - Addressing gender inequalities in education, Gender equity in health-Access to nutrition-Women’s participation in decision making -Role of civil society –Role of NGO’s in empowering women-Gender and Community Economic Development (CED) - Self-Employed Women’s Association (SEWA) - Shramshakti-Kudumbashree in Kerala. Factors affecting female entry in labour markets-supply and demand for female labour in developed and developing countries, in India and Kerala-Female work participation- in India and Kerala, in agriculture, non-agriculture rural activities, informal sector, cottage and small industries, organized industry and service sector- Impact of technology and modernization on women’s work participation- Effects of globalization and liberalization on women. Gender issues in Development- Gender disparity ,Global and Indian scenario -Gender roles , Gender Division of labour ,Occupational segregation and wage differences, Gender Stereotyping in workplace Gender inequality in labour, Pattern of employment of female labour in agriculture sector-impact of change in female labour employment.

Practical

Preparation of case studies based on field survey of Women in agriculture, on women participation in social, economic, political activities. Role of women in decision making in family and democratic institutions like co-operatives local self govt.s etc. Exercises on estimation of gender empowerment ratio, time series analysis of sex ratio, female literacy ratio, work participation etc across different states of India.

Suggested Readings

1. Dutta, Nandita and' Sumitra Jha. 2014: Women and Rural Development. Pacific Books International, Delhi.
2. Dutta, Nandita and, Sumitra Jha (2014): Women and Agricultural Development- Pacific Book, New Delhi.
3. Sen, Amartya. 1990. More than 100 Million Women are missing. Review of Books, New York. vol.37, No.20.
4. UNRISD. 2004. Gender Equality: Striving for Justice in an Unequal World- UNRISD, France.
5. ILO. 2002. Women and Men in the Informal Economy: A Statistical Picture- ILO.
6. Joyce Jacobsen. 2007. The Economics of Gender, Blackwell Publishers.

Bank 2207

Financial System and Services

3(2+1)

Theory

Financial System: Meaning and Significance; Functions of the financial system. Financial Assets, Financial markets, Financial instruments, financial institutions, financial services. Weakness of Indian financial system. Financial Institutions: commercial banks; Development Financial Institutions; Nonbanking financial corporations. Regulatory Institutions: RBI – Role and Functions. SEBI- objectives- function- powers-SEBI guidelines for primary and secondary market. Financial instruments: money market instruments and capital market instruments. Financial services companies in India: NBFCs-Evolution, growth, definition, services provided, comparison with banks, categories, sources of funds, role of NBFCs in the Indian financial system. Factoring- Concept and forms, factoring vs. bills discounting, international factoring, functions of a factor, advantages and disadvantages. Forfeiting. Venture capital: Nature and scope, venture capital investment process, limitations, venture capital schemes in India. Merchant banking: Origin, definition, nature and scope and functions; structure of merchant banking industry in India, regulation of merchant banking activity, pre-issue and post issue management of public issue. Mutual funds: Objectives, types, mutual fund industry in India.

Practical

Money market: Operation of various constituents of money market; Procedure for issue of Treasury Bills; Computation of issue price of Certificate of Deposits. Capital market: Process of Trading and Settlement in Stock Market; Accounting for primary issue of shares

Suggested Readings

1. Thummuluri, S. 2017. Financial services, Pearson Education. New Delhi.
2. Khan, M. Y. 2016. Financial Services (8th ed.). Mcgraw Hill Educations Pvt. Ltd, New Delhi.
3. Machiraju, R. H. 2012. Indian Financial System. Vikas Publishing House.
4. Khan, M.Y. 2016. Indian Financial System (9th ed.) Tata McGraw Hill Educations Pvt. Ltd., New Delhi.
5. Pathak, V. B. 2014: Indian Financial System (4th ed.), Pearson Education. New Delhi.

Theory

Digital banking: concept, products, need for digital banking products; customer education for digital banking products. ATMs: product features; Instant Money Transfer Systems; advantages of ATMs; risk management and frauds. Cash Deposit Machines: product features, advantages of CDMs, risk management and frauds. Cash re-cyclers: Overview, product features, risk management and frauds. Mobile banking: Overview, product features, merits of mobile banking, risk management and frauds. Internet banking: Overview, product features corporate and individual internet banking, integration with E-commerce, Intra-bank and inter-bank transfers, benefits of internet banking, risk management and frauds. POS terminals: Overview, product features, approval processes for POS, risk management and frauds. Payment systems: Overview of payment systems, RuPay and RuPay Secure, Immediate Payment Service (IMPS), National Unified USSD Platform (NUUP), National Automated Clearing House (NACH), Aadhaar Enabled Payment System (AEPS), e-KYC, Cheque Truncation System (CTS), National Financial Switch (NFS), RTGS, NEFT.

Practical

Customer education programmes for usage of digital banking products and moving to a cashless society. Familiarization of usage of digital banking products.

Suggested Readings

1. IIBF [Indian Institute of Banking and Finance]. 2016. Digital Banking. Taxmann.
2. Chris, S. Digital Bank. 2014. Marshall Cavendish International (Asia) Private Ltd.
3. Journal of Digital Banking. 2017. [ISSN [2397-060X](#) (Print); ISSN [2397-0618](#) (Online)]. Henry Stewart Publications.

Theory

Final accounts of joint stock companies: familiarization of form and contents of balance sheet- form and contents of Statement of Profit and Loss Account- features of Schedule III of Companies Act, 2013. Cash flow analysis. Funds flow statement. Distinction between funds flow statement and cash flow statement, funds flow statement and statement of profit and loss account. Cost management: Definition and purpose of accounting, difference between cost accounting and financial accounting, concept of cost, cost centre, cost unit, elements of cost, classification of cost, analysis of total cost, cost sheet. Absorption costing, marginal costing, difference between absorption costing and marginal costing. Cost-volume profit analysis, break-even chart, profit graph. Activity based costing. Standard costing: nature and scope, types of standards. Budgetary control: nature and scope, organisation for budgetary control, preparation of various functional and master budgets, fixed v/s flexible budget. Variance analysis- material variance, labour variance, overhead variance. Accounting for price level changes.

Practical

Computation and interpretation of ratios. Familiarisation of financial statements of Joint stock companies as per Companies Act, 2013. Preparation of cash flow and funds flow statements (AS-3

revised). Preparation of break-even chart and profit graph. Exercise in activity based costing. Preparation of functional budgets, flexible budgets. Exercise in variance analysis.

Suggested Readings

1. M.C. Shukla, T.S. Grew AL, S.C. Gupta, 2014. Advanced accounts, S. Chand & Co. Ltd., New Delhi. (18th ed.).
2. Shashi K. Gupta & R.K. Sharma, 2014. Management accounting principles and practice, Kalyani Publishers, New Delhi.
3. Ansumen, S. 2015. Cost accounting: Text and Cases. S.K book Agency
4. Rajasekharan, V., and Lalitha, R. 2010. Cost accounting, Pearson Publishers.
5. Jain, S. P., Narang, K. L., and Simmy, A. 2013. Advanced Cost Accounting; (Cost management), Kalyani Publishers.

Mmgt 2206	Value Chain in Agriculture	3(2+1)
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Theory

Meaning of value and value chain. Concept of value chain. Difference between supply chain and value chain. Components of value chain. Value chain governance. Value chain methodology. Economics of value chain. Financing of agriculture value chain. Market linkages in value chain. Use of ICT's in value chain. Risk identification and management in value chain. Value chain promotion. The process of value chain analysis and development. Mapping of value chain, Porter's value chain. GST and value chain.

Practical

Economics of value addition at different stages for different products, visits to processing units, logistics, godowns, ware houses, etc. value chain analysis of selected agriculture commodities

Suggested Readings

1. Miller,C. and Jones,L.M.2010.*Agricultural Value Chain Finance: Tools and Lessons* Food and Agriculture Organization of United Organisations, Italy,321p.
2. Vermeulen, S., Woodhill,J., and Proctor,F., and Delnoye,R.2014.*Chain-wide learning for inclusive agrifood market development*. IIED, 398p.
3. Kaplinsky, R. and Morris, M. 2014.*A Handbook for Value Chain Analysis* . IDRC, UK, 217p.
4. Porter, M.E. 1998. *Competitive advantage: creating and sustaining superior performance; with a new introduction* . Free Press, New York,388p.
5. Springer , H. A.2007. *Valuelinks: The methodology of value chain promotion*. GIZ LRED, South Africa, 290p.
6. Groznik, A. and Xiong, Y. 2014.*Pathways to Supply Chain Excellence*.CC BYIntech Publishers, USA, 342p.
7. Ballou, R.H. and Samir,K. 2012. *Business logistics/Supply chain management*. Pearson Education, NewDelhi,429p.

Theory

Introduction to Retail management. Types of retailers- Retail formats- Online and Offline retailing. Organized retailing and unorganized retailing. Retail location and layout- Retail strategies. Store management. Financial merchandise and category management. Inventory management and waste management. Retail marketing mix. Retail information system. Retailing research. Retailing challenges and charges. International retailing. Role of IT in retail management. Retail consumer behaviour.

Practical

Visits to organized retailing outlets such as private public and co-operative. Identification and recording of its marketing strategies to attract customers. Analysis of customer relationship strategies of organized retail shops. Case study analysis of retailing.

Suggested Readings

1. Berman,B. and Evans,J.R.2009. *Retail management*.Pearson Education, New Delhi, 343p.
2. Singh, H. 2014. *Retail Management : A global perspective: Text and Cases*.S.Chand& Co Ltd, New Delhi, 871p.
3. Hasty, R. and Reardon, R.1997. *Retail management*.McGraw Hills Education, New Delhi, 339p.
4. CII Global Retail Report, Confederation of Indian Industry, New Delhi.
5. *The Journal of business and retail management research*, Academy of Business & Retail Management, UK.
6. *Journal of Retailing*. Elsevier, Netherlands.

Theory

Introduction to International Marketing. Scope and Size of International markets, Conceptual framework, Institutional frame work. Environment of International Agribusiness. Policy framework and procedural aspects. International marketing mix. International marketing planning, International market selection and Segmentation; Co-ordination and Control. Total Quality Management. International marketing organisation. International Agribusiness Marketing research. International Trade Agreements. International marketing institutions. Global value chain.

Practical

Visits to export oriented agribusiness units. Analyzing the marketing strategies of export oriented units. Performance evaluation strategies of export units. Analysis of case studies on international agricultural import and export firms.

Suggested Readings

1. Rathore, B.S. and Rathore,J.S. 1996. *International Marketing*. Himalaya Publishing House, New Delhi, 484p.
2. Lascu, D.N. 2007. *Managing Worldwide Operations in a changing international environment*. Dana-NicoletaLascu International, Virginia, 294p.
3. Onkivist,S. and Shaw, J.J.1997. *International Marketing Analysis and Strategy*

4. Onkivist,S and Shaw,J.J.2012. Marketing strategy and theory.
5. *Journal of International Food and Agribusiness Marketing*, Rout ledge Publishers, USA
6. *Journal of Agribusiness in Developing and Emerging Economics*, Emerald Group Publishers.

COMMON COURSES

Mmgt2205	Entrepreneurship Development	2(1+1)
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Theory

Concept of Entrepreneur, Characteristics of entrepreneurs; Entrepreneurial Development Process; Entrepreneurial competencies, Business Leadership Skills; Organizational skill, Managerial skills, Problem solving skill. Agribusiness opportunity identification. Entrepreneurship ecosystem in India and Kerala. Government policies regarding entrepreneurship development. Business plan and business development plan. Definition of MSME. Women entrepreneurship. Student entrepreneurship.

Role and importance of SSIs, growth of SSIs in five years plan, policy and legal framework of SSIs, procedures for starting on SSI unit. Financing of enterprise, Institutional support for the promotion of SSIs

Practical

Exercises entrepreneurial competency assessment, Entrepreneurial competency development through systematic planning-simulation exercise, Business opportunity identification –case analysis. Market assessment-market survey-data collection, data analysis, report writing. Preparation of Business plan and Business development plans, Visit to successful agribusiness enterprises, Interaction with successful entrepreneurs.

Suggested Readings

1. Eswald,H.R. and Burnett, R.E. 2002.*Business Communication*, Prentice Hall. New Delhi, 407p.
2. Bhatia, R.C.2009.*Business Communication*, Ane Books Pvt Ltd, New Delhi, 266p.
3. Dutt, K.D. 1979. *Principles of Management in Agribusiness*.Rustom Pub. Co, Virginia, 256p
4. Anderson.,Lee,R., and Dunkelberg .1990. *Entrepreneurship*. Harper and Row Publishers, New York,471p.
5. Steinhoff,D.1993.*Small Business Management Fundamentals*. McGraw Hill, New York,369p.
6. Badi,B.D and Badi, N.V. 2007. *Entrepreneurship*.Vrindha Publication, New Delhi, 259p.
7. Lal, M.andSahar, S. 2008.*Entrepreneurship*.Anurag Jain Publisher , New Delhi, 423p.
8. Stokes,D.,Wilson,N., and Wilson, N.2010.*Small business management and Entrepreneurship*. Cengage learning. UK, 471p.
9. International Journal of entrepreneurship and Small Business, Inderscience Publishers, UK.
10. Journal of Entrepreneurship, Sage Publications, India

Theory

Communication Skills: Structural and functional grammar; meaning and process of communication, encoding and decoding skills, verbal and nonverbal communication; listening and note taking, writing skills, oral presentation skills; field diary and lab record; indexing, footnote and bibliographic procedures. Reading and comprehension of general and technical articles, precise writing, summarizing, abstracting; individual and group presentations, impromptu presentation, public speaking; Group discussion. Organizing seminars and conferences; personality development, personality theories, attitudes, motivation and perception.

Practical

Listening and note taking, writing skills, oral presentation skills; field diary and lab record; indexing, footnote and bibliographic procedures. Reading and comprehension of general and technical articles, precise writing, summarizing, abstracting; individual and group presentations.

Suggested Readings

1. Applebaum, R.L., Anantol, K.W.E., Hays, E.R., Jansen, O.O., Porla, R.E. and Mandel, J.E. 1973. *Fundamental concepts in human communication*. Harper & Row, New York.
2. Barun, K.M. 2011. *Personality Development and Soft Skills*. Oxford publishers
3. Dahama, O.P. and Bhatnagar, O.P. 2003. *Education and communication for Development*. Oxford, IBH, New Delhi.
4. Flesche, R. 1997. *How to write, speak and think more effectively*. Harper & Row, New York.
5. Joseph, E.H. and Alan, G. 2010. *The Craft of Scientific Communication*. Chicago guides to writing, editing, and publishing, 240p.
6. Koprowska, K. 2008. *Communication and interpersonal skills in social work* (2nd Ed). Exeter, learning matters.

Theory

Environmental studies: Multidisciplinary nature, definition, scope and importance.

Natural Resources: Renewable and non-renewable resources, Natural resources and associated problems. a) Forest resources: Use and over-exploitation, deforestation, case studies. Timber extraction, mining, dams and their effects on forest and tribal people. b) Water resources: Use and over-utilization of surface and ground water, floods, drought, conflicts over water, dams-benefits and problems. c) Mineral resources: Use and exploitation, environmental effects of extracting and using mineral resources, case studies. d) Food resources: World food problems, changes caused by agriculture and overgrazing, effects of modern agriculture, fertilizer-pesticide problems, water logging, salinity, case studies. e) Energy resources: Growing energy needs, renewable and non-renewable energy sources, use of alternate energy sources. Case studies. f) Land resources: Land as a resource, land degradation, man induced landslides, soil erosion and desertification. Role of an individual in conservation of natural resources. Equitable use of resources for sustainable lifestyles.

Ecosystems: Concept of an ecosystem, Structure and function of an ecosystem, Producers, consumers and decomposers, Energy flow in the ecosystem. Ecological succession, Food chains, food webs and ecological pyramids. Introduction, types, characteristic features, structure and

function of the following ecosystem: a. Forest ecosystem b. Grassland ecosystem c. Desert ecosystem d. Aquatic ecosystems (ponds, streams, lakes, rivers, oceans, estuaries)

Biodiversity and its conservation: - Introduction, definition, genetic, species & ecosystem diversity and biogeographical classification of India. Value of biodiversity: consumptive use, productive use, social, ethical, aesthetic and option values. Biodiversity at global, National and local levels, India as a mega-diversity nation. Hot-spots of biodiversity. Threats to biodiversity: habitat loss, poaching of wildlife, man-wildlife conflicts. Endangered and endemic species of India. Conservation of biodiversity: In-situ and Ex-situ 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 g. Nuclear hazards. Solid Waste Management: causes, effects and control measures of urban and industrial wastes. Role of an individual in prevention of pollution.

Social Issues and the Environment: From Unsustainable to Sustainable development, Urban problems related to energy, Water conservation, rain water harvesting, watershed management. Environmental ethics: Issues and possible solutions, climate change, global warming, acid rain, ozone layer depletion, nuclear accidents and holocaust. dies. Wasteland reclamation. Consumerism and waste products. Environment Protection Act. Air (Prevention and Control of Pollution) Act. Water (Prevention and control of Pollution) Act. Wildlife Protection Act. Forest Conservation Act. Issues involved in enforcement of environmental legislation. Public awareness.

Human Population and the Environment: population growth, variation among nations, population explosion, Family Welfare Programme. Environment and human health: Human Rights, Value Education, HIV/AIDS. Women and Child Welfare. Role of Information Technology in Environment and human health.

Disaster Management

Natural Disasters- Meaning and nature of natural disasters, their types and effects. Floods, drought, cyclone, earthquakes, landslides, avalanches, volcanic eruptions, Heat and cold waves, Climatic change: global warming, Sea level rise, ozone depletion.

Man Made Disasters- Nuclear disasters, chemical disasters, biological disasters, building fire, coal fire, forest fire, oil fire, air pollution, water pollution, deforestation, industrial waste water pollution, road accidents, rail accidents, air accidents, sea accidents.

Disaster Management- Effect to migrate natural disaster at national and global levels. International strategy for disaster reduction. Concept of disaster management, national disaster management framework; financial arrangements; role of NGOs, community –based organizations and media. Central, state, district and local administration; Armed forces in disaster response; Disaster response; Police and other organizations.

Practical

Pollution case studies. Case Studies- Field work: Visit to a local area to document environmental assets river/ forest/ grassland/ hill/ mountain, visit to a local polluted site-Urban/Rural/Industrial/Agricultural, study of common plants, insects, birds and study of simple ecosystems-pond, river, hill slopes, etc. -Collection, processing and storage of effluent samples; Physical, chemical and biological analysis of soil and water samples : Determination of Bio-Chemical oxygen demand (BOD) in effluent sample; Determination of chemical oxygen demand (COD) in effluent sample; Estimation of dissolved oxygen in effluent samples; Determination of total dissolved solids (TDS) in effluent samples; Estimation of species abundance of plants; Estimation of nitrate and heavy metals in ground water; Analysis of temporary and total hardness of water sample by titration; Estimation of pesticide contamination in Agro-Ecosystem; Crop adaptation to environmental variables, soils conditions; Visit to a local polluted site. Observations and remedial measures. Visit to Social Service Organization / Environmental Education Centers.

Suggested Readings

1. Ahluwalia, V.K and Malhotra, S. *Environmental Science*. 2006. Ane Books Pvt. Ltd. India
2. Banjerji, S.K. 1993. *Environmental Chemistry*. Prentice Hall of India Pvt. Ltd, New Delhi
3. Hodges, L.1973. *Environmental Pollution*. 2nd Edn. Holt,, Rinehart and Winston, USA
4. Gupta, A.K. 2007. *Methods in Environmental Analysis Water, Soil and Air*. 2nd Edn. Published by AGROBIOS(India) Jodpur
5. Katyal, K. and Satake, M. 1990. *Environmental Pollution*. 2nd Edn. Anmol Publishers, New Delhi
6. Larcher, W. 1980. *Physiological Plant Ecology*. Springer- Verlag, New York
7. Loomis, R.S and Corner, D.J. 1992. *Crop Ecology, Productivity and Management in Agricultural Systems*. Cambridge University Press
8. Pandey, S.N and Misra, S.P. 2011 *Environment and Ecology*. Ane Books Pvt. Ltd. India
9. Purohit,S.S. 2006. *Environmental Pollution Causes, Effects and Control*. Published by AGROBIOS (India), Jodpur

STUDENT READY

Rawe 4101	Rural Work Experience in Co-operation Banking	20(0+20)
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Course Code	Activities	No. of Weeks	Credit Hours
RAWE 4101	Orientation Programme	1	20
	Placement in the Assistant Registrar of Cooperative Societies and the Assistant Director of Cooperative Audit(two weeks each)	4	
	Village Stay	1	
	Project Work	14	
	Total	20	20

Orientation Programme (one week)

Soon after registration, the students will be given one week orientation programme to imbibe the concepts of Rural Entrepreneurship Awareness Development Yojana (READY) as proposed by the ICAR, its intended objectives, scope and methodology, expected outcome, maintenance of work diary, evaluation pattern and general conduct and behaviour. The programme will also include a refresher course on Research Methodology for carrying out their UG project work on an identified thrust area of research.

Placement in the Department of Cooperation (four weeks)

The students will be placed with the Assistant Registrar of Cooperative Societies for two weeks and the Assistant Director of Cooperative Audit for two weeks. They are expected to work with them, and collect data for reporting in the prescribed Proforma.

Village Stay (One week)

The Village Stay is intended to expose the students to the socio-economic and cultural milieu of the farming community in the village. All the students will be camping in a selected village for 5 days under the supervision of a multi disciplinary team of teachers including at least one female teacher. During the stay the students will visit the farmers and collect data relating to their socio-economic conditions, farming practices, support service linkages including credit, procurement, processing and marketing. Every student is required to survey at least 25 households with the help of a

structured schedule to understand certain basic aspects of farm management during the stay and prepare a brief report about the results immediately after the survey.

Project Work (Fourteen weeks)

As part of the RAWE the students have to do a project work on an organizational/managerial/institutional/operational aspect related to Agri-business enterprises, Co-operative enterprises, financial institutions and related areas.

The Project Work has the following definite objectives:

- a) To equip the students to identify and analyse the organizational, managerial and operational problems of various organizations involved in socio-economic development activities;
- b) To train the students in the collection, classification, tabulation, analysis, presentation and interpretation of data; and
- c) To assist the students to acquire the report writing skills

The faculty members will be asked to Guide students for carrying out the project work. They will identify the research topic and the institution.

Two weeks since the commencement of the Placement for Project Work, each student shall make a presentation of the project proposal before an Evaluation Committee for approval. The presentation has to cover the statement of the problem, objectives, sampling design, techniques of data collection and analysis.

With the approval of the guide, the candidate will submit his project report in the prescribed format for evaluation. Then the candidate has to appear before the board of examiners consists of a Chairperson, Examiner and the Guide for defending his/her work. The Final Project Report after incorporating all the corrections proposed by the Board of Examiners should be neatly typewritten with double space on bond paper of A4 size. The 4 copies of the Project Report should be submitted within 15 days from the date of evaluation. One copy each will be issued to College Library, the student, guide concerned and institution where the project work was undertaken.

Elcb	Experiential Learning	20 (0+20)
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Course Code	Activities	No. of Weeks	Credit Hours
Elcb 4201	Preparation of Business Plan	10	10
Elcb 4202	Rural Development Consultancy Services	10	10
Elcb 4203	KAU Technology Diffusion Strategies	10	10
Elcb 4204	Market Intelligence Practices	10	10
Elcb 4205	Production/Processing/Procurement and Marketing of agribusiness products.	10	10
Elcb 4206	Web Based Promotional Content Development for Agripreneurs	10	10
Elcb 4207	Design, Development & Implementation of Financial Literacy Programmes for Farmers & Women	10	10
Elcb 4208	Agri & Agri-Business Finance Consultancy Services	10	10
	Total	20	20

Note: Students will have to choose any two from the above courses

Elcb 4201 Preparation of Business Plan (0+10)

The students will prepare business plans for Agriculture and rural development businesses for Co-operatives/SHGs/Farmer Producer Companies/Local Self Governments/ Kerala Institute of Local Administration/startups/other existing enterprises. The activities will encompass business environment scanning, assessment of financial, technical, social, environmental and economic sustainability and feasibility of the business plan, Network analysis and reporting in the standard format to suit the funding agencies. The Business Plans will be uploaded in the web portals created especially for the purpose.

Elcb 4202 Rural Development Consultancy Services (0+10)

The students will identify the farmers or farmers' collectives through the local self governments, good practices of local governments in agricultural development, in liaison with the Kerala Institute of Local Administration (KILA)/ATMA and prepare the reports on good practices of integrated/homestead farming for ten weeks. Further, the economics of various farming systems like mixed farming, terrace farming, precision farming, open and protected farming/contract farming /joint farming can also be studied. By virtue of this exercise, the students will report the cropping system, cost and returns, sourcing and use of inputs, harvesting and marketing, cost reduction mechanism, quality up gradation practices, mapping of value chain, convergence to *parastatals* and other rural development institutions and civil society. Hand books will be prepared by the students for KILA, which will be used as teaching materials for elected representatives from Kerala and rest of India, and other countries.

Elcb 4203 KAU Technology Diffusion Strategies (0+10)

Kerala Agricultural University is continuously inventing and innovating production and processing technology. The students will carry out studies to understand the awareness and extent of adoption of KAU technology, constraints in technology adoption, required intervention strategies, socio-economic impact of adoption, technology needs assessment, training needs assessment of farmers and farmers' collectives.

Elcb 4204 Market Intelligence Practices (0+10)

The students will be engaged in collection of data related to trends and patterns of market prices (spot and future prices) and structure, conduct & performance of wholesale markets, terminal markets, E-auction, E-NAM, the institutions involved in marketing of selected Kerala based agricultural commodities and carryout market research. This ten Weeks exercise will sharpen the students' ability to carry out both empirical and fundamental analysis for price discovery.

Elcb 4205 Production/Processing/Procurement and Marketing of Agribusiness Products (0+10)

The students will produce/process/procure and market both agricultural inputs and produces. They virtually engaged in business activities of their choice. The college ELCB Unit will facilitate them to secure angel funding and the startups can be scaled up when s/he moves out the University. The faculty will sensitize the students about the dynamics of business environment and mentor them to experience the process of applying their professional knowledge and skills in identifying attractive business ideas, converting them into sustainable business models and managing them efficiently and effectively. The objectives is to provide hands on experience to students in the functional areas of agri-business management and make them 360* professionals.

Elcb 4206 Web Based Promotional Content Development for Agripreneurs (0+10)

Of late farmers access to web portals have increased significantly. However, farmers are in need of information to know the package of practices and the government /cooperative/ private

institutions support for farmers with respect to input distribution, processing and output marketing. The students will identify a suitable subject for E-Content development relating to forward and backward linkages, cases of successful entrepreneurs and develop video modules for demonstration to the potential agripreneurs for orienting and motivating them.

Elcb 4207 Design, Development & Implementation of Financial Literacy Programmes for Farmers and Women (0+10)

For each batch of students, area / village/ villages will be identified for conducting Financial Literacy Programmes, starting with conduct of baseline survey followed by Participatory Rural Appraisal (PRA) to take stock of the situation, on the basis of which, the Financial Literacy Programmes will be conducted. The target beneficiaries will be identified and trained for adopting modern banking technologies and products for their day to day operations including Direct Benefit Transfer (DBT), mobile banking, ATM / debit cards etc and moving to a cashless economy as per the policy of the Government. The training modules include interactive sessions, hands on training for using innovative banking services applicable to them, distribution of leaflets, enacting skits by students etc.

Elcb 4208 Agri & Agri-Business Finance Consultancy Services (0+10)

The module proposes to make use of the available student resources to promote agriculture, income generating activities/ agri-business enterprises among farmers and women of identified villages/ area by provision of consultancy services for procuring finance including bank credit, crop insurance and subsidies and incentives, development of project proposals for obtaining finance from funding agencies, liaison with various institutions involved etc. Based on training needs assessment and Entrepreneurial Motivation Campaigns, the proposed beneficiaries will be identified. EDP modules encompassing general aspects of enterprise development along with available commercially viable technology developed by KAU will be conducted. Post training assistance to interested stakeholders can also be provided by later batches of students.

NON-GRADIAL COURSES

Extn 1101	Human Values and Ethics	1 (1+0)
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Theory

Values and Human values- meaning and importance in the field of agriculture and daily life. Definitions related to ethics and human values-mores, norms, folkways, beliefs, trust, perseverance, accuracy and discernment-agriculture and human values. Self- self explorations, its content and process, Natural acceptance and experiential validation. Understanding happiness and prosperity- a critical analysis of different philosophers. An appraisal of the current scenario. Morals and ethics- meaning definition and concepts, difference between morals and ethics. Moral dilemma versus moral autonomy. Values- meaning types of values- evolution of human values; value based education-its meaning and importance in personal development. Mahatma Gandhi’s seven sins of the world. Virtues- meaning, definition and types. Civic virtues as indispensable for a self-governing administration- category of virtues. Plagiarism- meaning, definition, concepts and ways of plagiarism in research and publishing. Methods to prevent plagiarism. Means to live peacefully, in the world. Factors that promote living, with internal and external peace. Basic human aspiration, list of wants, basic requirements for fulfillment of human aspirations. Challenges in the work place-character- meaning and types- ethics and character, education and character; ways of building

character in the work place. Employer-employee reasons for unethical behaviours: resource scarcity, opportunity, Attitude- Types of inquiries, in solving ethical problems- normative inquiry, conceptual inquiry, and factual or descriptive inquiry. Competence in professional ethics: ability to utilize the professional competence for universalising human norms. Competence in professional ethics: Ability to identify the scope and characteristics of people friendly and eco-friendly production systems, technologies and management models- with special reference to agriculture and allied activities. Ethics in communication- public relations- publishing- advertising and propaganda.

Suggested Readings

1. Ashton, Q.A. 2013 . *Issues in Agricultural and Environment*. Scholarly Editions, Atlanta, Georgia.
2. Berleur, J.1996. *IFIP Framework for Ethics, Science and Engineering Ethics* (Special Issue on Global Information Ethics), 2, 2, 155-165.
3. Bowman, J.S. and Menzel, D.C.1998 .*Teaching Ethics and Values in Public Administration Programs: Innovations, Strategies and Issues*, SUNY Press: Albany.
4. Cassuto Rothman, J.1998. *From the Front Lines, Student Cases in Social Work Ethics*. Needham Heights, MA: Allyn and Bacon.
5. Fisher,C.B. 2003. *Decoding the ethics code: a practical guide for psychologists*. Sage publications
6. Gambrill, E. and Pruger, R. (eds). 1996. *Controversial Issues in Social Work Ethics, Values, & Obligations*. Needham Heights, MA: Allyn and Bacon, Inc.

Devp 1201	Physical Education and Yoga Practices	1 (0+1)
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Definition and Meaning of Physical Fitness - Values of Physical Fitness - Components of Health Related Physical Fitness and Athletic related Physical Fitness – Health benefits of Physical Activity- Hypo kinetic/ life style diseases and its management.

First Aid - Treatment - Laceration – Blisters – Contusion - Strain – Sprain – Fracture – Dislocation and Cramps – Bandages – Types of Bandages – trapping and supports.

Concept of Yogic Practices-Kinds of Yogic Practices:Asana, Pranayama, Kriya, Bandha, Murda, Dhyana. Asana: Definition, Scope and Limitation of Asanas – Classification of Asanas – Meditative Asanas – Relaxative Asanas-Cultural Asanas – Step by Step Performance of Asanas - Safety Measures and Precautions.

Pranayama: Meaning – different Phases in Pranayama Practice: Puraka (Inhalation), Kumbhaka (Retention) and Recaka (Exhalation) – Breathing Ratio in Pranayama Practice – Application of Bandhas in Pranayama – Safety Measures and Precautions.

Meaning and Concepts of Meditation.

Practical (Optional: Any two will offer according to the infrastructure facilities available)

Track & Field, Games (Basketball, Volleyball, Football, Shuttle Badminton, Cricket), Health Related Physical Fitness Test (Compulsory)

Nsnc 1201	NSS	1(0+1)
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Course aims at 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 development to be able for self employment, reducing gap between educated and uneducated, increasing awareness and desire to help sections of society.

Practical

1. Introduction and basic components of NSS: Orientation
2. NSS programmes and activities
3. Understanding youth
4. Community mobilization, social harmony and national integration
5. Volunteerism and shramdan
6. Citizenship, constitution and human rights
7. Family and society
8. Importance and role of youth leadership
9. Life competencies, youth development programmes
10. Health, hygiene and sanitation, youth health, lifestyle, HIV AIDS and first aid
11. Youth and yoga
12. Vocational skill development, issues related environment
13. Disaster management
14. Entrepreneurship development
15. Formulation of production oriented project, documentation and data reporting
16. Resource mobilization
17. Additional life skills
18. Activities directed by the Central and State Government

Stur 3101	All India Study Tour	1 (0+1)
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To familiarise the operations and functions of National Institutions related to co-operation, Economics, marketing, Banking financial sector and Agri-Business such as International Co-operative Alliance, AMUL, National Co-operative Union of India, Reserve Bank of India, NABARD, SEBI, NSE, BSE, MCX, All India Management Association, Mother dairy, NAFED, NAARM, NIRD etc.

Stur 4102	All Kerala Study Tour	1(0+1)
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To familiarise the students with State level Institutions such as KAU Research Stations, KVKs, Kerala State Co-operative Bank, KSCARDB, Malsya Fed, Consumer Fed, Ooralungal Labour Co-operative Society, Dinesh Beedi, NGOs, Producer Companies, Regional Office of RBI etc.

REMEDIAL COURSES (NON-GRADED)

Cmgt1102	Principles of Management	2(2+0)
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Theory

Management - meaning, nature and principles. Management process. Management as a profession. Evolution of management thought. Planning - definition and nature, steps in planning process, techniques of planning, types of plans, Strategy formulation - types of strategies. Decision-making - classification of decisions - steps in decision-making, process - models of decision-making. Organizing function - concept and process, span of management, delegation of authority, centralization and decentralization, line and staff authority. Concept of management hierarchy- Departmentalization - Various organizational structures, six sigma, Staffing, Directing, Controlling-

meaning, process of control-relationship between planning and control, role of communication in control, operational and management controls, requirements of an effective control system, principles of control.

Suggested Readings

1. Frederick Winslow Taylor. 2006. *The Principles of Scientific Management*. Cosimo Inc., New York.
2. Stephen P. Robbins. 2011 *Principles of Business Management*. Pearson India Education Service Pvt. Limited, New Delhi,
3. Harold Koontz and Heinz Weihrich. 2015. *Essentials of Management: An International, Innovation and Leadership Perspective Paperback*. Tata McGraw –Hill, New Delhi.
4. Samuel C. Certo and Tervis Certo. 2015. *Modern management: concepts and skills*. Pearson India Education Service Pvt. Limited, New Delhi.
5. Ramesh Sharma. 2012. *Fundamentals of Management*. ABD Publishers, New Delhi.
6. *Indian Management*, All India Management Association, New Delhi.
7. *Harvard Business Review*, Harvard Business School Publishing, Harvard.

Agst 1101

Mathematics for Agri-Business

2 (1+1)

Theory

Unit I: Sequences and series, progressions - arithmetic, geometric and harmonic progressions. Sum of squares and cubes of first and natural numbers (statement only), sum of finite arithmetic and geometric progression infinite geometric series.

Unit II: Straight lines : Distance formula, 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, 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 straight lines, Angles between two straight lines, Parallel lines, perpendicular lines, Angle of bisectors between two lines, Area of triangle and quadrilateral.

Unit III : Matrices and determinants- matrices as a rectangular array of real numbers, equality of matrices addition, scalar multiplication and product of matrices, transpose of a matrix, determinant of a square matrix of order up to three. Inverse of a square matrix of order up to three. Properties of matrix operation diagonal, symmetric, skew symmetric orthogonal matrices and their properties. Solution of linear equations - matrix method, Cramer's Method- Elementary Row and column transformation -Gauss elimination method- rank of a matrix.

Unit IV: Differential calculus, functions polynomial, rational, trigonometric, inverse function logarithmic and exponential function, even and odd functions; graphs of simple functions; limits and continuity, differential coefficients of the sum, difference, product and quotients of two functions.

Differentiation of algebraic, trigonometric, logarithmic, exponential, composite and implicit function and parametric functions; successive differentiation. Partial differentiation

Unit V: Application of derivatives; increasing and decreasing functions - maxima and minima of function of one variable; economic applications – average and marginal concept - maximization of revenue, profit, minimization of cost.

Unit VI: Integral calculus- integral as anti derivative fundamental integrals involving algebraic function; integration by substitution and by parts. Properties of definite integral, determining areas of the region bounded by simple curves. (Derivations not required)

Practical

Business and Managerial application problems related to progressions, Straight lines, matrices, differentiation and integration.

Suggested Readings

1. Holden K and Pearson A.W 2002. *Introductory Mathematics for Economics and Business*, Macmillian Press,London
2. Kandoi B.R. 1983. *Basic mathematics for Social Sciences*, Kalyani Publications
3. Mehtha, Madnani 1992. *Mathematics for Economists*, Sultan Chand
4. Shanti Narayan 1993. *Differential calculus*, S.Chand, New Delhi
5. Shanti Narayan 1993. *Integral calculus*, S.Chand, New Delhi

Biol 1101**Fundamentals of Biology****2 (1+1)****Theory**

Introduction to the living world, diversity and characteristics of life, origin of life, Evolution and Eugenics. Binomial nomenclature and classification Cell and cell division. Morphology of flowering plants. Seed and seed germination. Plant systematic – viz; Brassicaceae, Fabaceae and Poaceae. Role of animals in agriculture.

Practical

Morphology of flowering plants – root, stem and leaf and their modifications. Inflorescence, flower and fruits. Cell, tissues & cell division. Internal structure of root, stem and leaf. Study of specimens and slides. Description of plants – Brassicaceae, Fabaceae and Poaceae.

Suggested Readings

1. NCERT: Biology Text Book for Class XI.
2. NCERT: Biology Text Book for Class XII.