



Re-Accredited 'B++' 2.86 CGPA by NAAC

VEER NARMAD SOUTH GUJARAT UNIVERSITY

University Campus, Udhna-Magdalla Road, SURAT - 395 007, Gujarat, India.

વીર નર્મદ દક્ષિણ ગુજરાત યુનિવર્સિટી

યુનિવર્સિટી કેમ્પસ, ઉદ્ધના-મગદલા રોડ, સુરત - ૩૯૫ ૦૦૭, ગુજરાત, ભારત.

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ક્રમાંક :ઓથો./પરિપત્ર/૧૨૧૭૯/૨૦૨૫

તા.૩૦/૦૫/૨૦૨૫

પ્રતિ,
વડાશ્રી,
બાયોટેકનોલોજી ડિપાર્ટમેન્ટ,
વીર નર્મદ દક્ષિણ ગુજરાત યુનિવર્સિટી,
સુરત.

વિષય:— M.Sc.(5 years Integrated) Biotechnology Sem.-3 Multidisciplinary Course -Bio-Economics નાં અભ્યાસક્રમ અંગે.

મહાશય,

સવિનય જણાવવાનું કે, શૈક્ષણિક વર્ષ ૨૦૨૫-૨૬ થી અમલમાં આવનાર M.Sc.(5 years Integrated) Biotechnology Sem.-3 Multidisciplinary Course -Bio-Economics નો નિયુક્ત પેટાસમિતિ દ્વારા તૈયાર કરવામાં આવેલ અભ્યાસક્રમને બાયોટેકનોલોજી વિષયની અભ્યાસ સમિતિની તા.૧૯/૦૪/૨૦૨૫ની સભાના ઠરાવ ક્રમાંક:૦૫ થી કરેલ ભલામણ સ્વીકારી વિજ્ઞાન વિદ્યાશાખાની તા.૩૦/૦૪/૨૦૨૫ની સભાનાં ઠરાવ ક્રમાંક:૩૬ થી કરેલ ભલામણ સ્વીકારી એકેડેમિક કાઉન્સિલની તા.૦૫/૦૫/૨૦૨૫ ની સભાનાં ઠરાવ ક્રમાંક: ૧૦૦ થી મંજૂર કરેલ છે. જેનો અમલ કરવા આથી જાણ કરવામાં આવે છે.

બિડાણ: ઉપર મુજબ

W. P. S.
કુલસચિવ (અ)

પ્રતિ,

૧) ડીનશ્રી, વિજ્ઞાન વિદ્યાશાખા.

૨) પરીક્ષા નિયામકશ્રી, પરીક્ષા વિભાગ, વીર નર્મદ દ. ગુ. યુનિવર્સિટી, સુરત.

.....તરફ જાણ તેમજ અમલ સારું.

[Subject Code-2503000503041112]

VEER NARMAD SOUTH GUJARAT UNIVERSITY, SURAT

Undergraduate Program (Science Faculty)

(3 Years B. Sc. Degree; 4 Years B. Sc. with Honours/Honours with Research)

Semester-III

Multidisciplinary Course: BT-MDC-302: Bio-Economics

Course Code	BT-MDC-302									
Course Title	Bio-Economics									
Credits	4									
Course Level	200-299									
Total engagement	4 Credits x 15 Hours = 60 Hours									
Teaching per week	4 h									
Minimum weeks per semester	15 weeks (Including classwork, examination, preparation & holidays)									
Effective from	2025-2026									
Purpose of Course	This course aims to provide an academic foundation in bio-economics by examining the dynamic interactions between biological and economic systems. It emphasizes the critical role of ecosystem health and resource sustainability in shaping economic activities and societal well-being, while analyzing how economic decisions impact natural environments.									
Course Objectives	This course introduces students to the interdisciplinary field of bio-economics, covering key concepts, theories, and ecological principles relevant to sustainable development and resource management. It explores economic analysis of environmental issues, such as market failures and externalities, and examines policy tools for environmental management. Students will also apply bio-economic principles to real-world sectors like agriculture, health, and natural resource management.									
Course Outcomes	CO1: Students will gain a comprehensive understanding of bio-economics, including its interdisciplinary nature, CO2: Key concepts (scarcity, efficiency, trade-offs), and theories (ecological economics, environmental economics, agricultural economics), enabling them to evaluate and apply sustainable resource management strategies and decision-making processes. CO3: It will equip students with a solid foundation in understanding the relationship between economics and the environment. They will develop the knowledge and analytical skills necessary to assess and evaluate environmental issues, policies, and projects from an economic perspective. CO4: Students will have the knowledge and skills necessary to understand and address the economic challenges and opportunities associated with farming systems, healthcare systems, natural resource management,									
Mapping between COs with PSOs		PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8	
	CO1									
	CO2									
	CO3									
	CO4									
Pre-requisite	Fundamental knowledge of Economics, Biology, Mathematics and Statistics, Environment Science, Agricultural Science and Social Science.									

Course Content	UNIT-1: Introduction to Bio-Economics: Definition and scope of bio-economics; Theories in bio-economics: ecological economics, environmental economics, agricultural economics, Interdisciplinary nature of bio-economics.	Teaching Hours: 12
	UNIT-2: Key Concepts in Bio-Economic Analysis: Key concepts in bio-economics (scarcity, efficiency, trade-offs); Steps in Bio-Economic analysis (Problem identification, Parameter estimation, Bio-economic modelling and decision-making), Concept of Circular Vs Linear Economy, Case studies.	Teaching Hours: 16
	UNIT-3: Economic Analysis of Environmental Issues: Cost-benefit analysis for environmental projects; Economic instruments for environmental management: taxes, subsidies, cap-and-trade; Environmental policy and regulation (The United States and India), Market failures and externalities in relation to the environment, Environmental damage compensation (CPCB Guidelines).	Teaching Hours: 16
	UNIT-4: Bio-Economic Applications: Agricultural economics: farming systems, food supply chains, agricultural policies applicable in India; Health economics: economic analysis of healthcare network in India, health policy evaluation of India; Natural resource economics: fisheries management, forestry, biodiversity conservation.	Teaching Hours: 16
Reference Books	<ul style="list-style-type: none"> • "Bioeconomics: Principles and Applications" by Colin W. Clark and Gordon R. Munro. • "Nature's Economy: A History of Ecological Ideas" by Donald Worster. • "Environmental Economics: An Introduction" by Barry C. Field and Martha K. Field. • "Environmental and Natural Resource Economics" by Jonathan M. Harris and Brian Roach. • "Agricultural Economics and Agribusiness" by Gail L. Cramer and Clarence W. Jensen. • "The Economics of Health and Health Care" by Sherman Folland, Allen C. Goodman, and Miron Stano. • "Natural Resource Economics: An Introduction" by Barry C. Field and Martha K. Field. 	
e-learning resources	<ul style="list-style-type: none"> • https://doi.org/10.4236/jssm.2024.172006 	
Teaching Methodology	Classwork, Discussion, Self-Study, Projects, Seminars and/or Assignment	
Evaluation Method	50% Internal assessment based on class attendance, participation, class test, quiz, assignment, seminar, internal examination, etc. 50% External based on semester end University examination.	