



## TR 2 – TECHNOLOGY RESEARCH 2

### UNIVERSITY VISION

A leading University in advancing scholarly innovation, multi-cultural convergence, and responsive public service in a borderless Region.

### UNIVERSITY MISSION

The University shall primarily provide advanced instruction and professional training in science and technology, agriculture, fisheries, education and other related fields of study. It shall also undertake research and extension services, and provide progressive leadership in its areas of specialization.

### UNIVERSITY STRATEGIC GOALS

- a. Deliver quality service to stakeholders to address current and future needs in instruction, research, extension, and production
- b. Observe strict implementation of the laws as well as the policies and regulations of the University
- c. Acquire with urgency state-of-the-art resources for its service areas
- d. Bolster the relationship of the University with its local and international customers and partners
- e. Leverage the qualifications and competences in personnel action and staffing
- f. Evaluate the efficiency and responsiveness of the University systems and processes

### INSTITUTIONAL OUTCOMES (IO)

- a. Enhance competency development, commitment, professionalism, unity and true spirit of service for public accountability, transparency and delivery of quality services
- b. Provide relevant programs and professional trainings that will respond to the development needs of the region
- c. Strengthen local and international collaborations and partnerships for borderless programs
- d. Develop a research culture among faculty and students
- e. Develop and promote environmentally-sound and market-driven knowledge and technologies at par with international standards
- f. Promote research-based information and technologies for sustainable development
- g. Enhance resource generation and mobilization to sustain financial viability of the university

### PROGRAM OUTCOMES (PO) COMMON TO ALL PROGRAMS AND ITS RELATIONSHIPS TO INSTITUTIONAL OUTCOMES

A graduate of the BlndTech program can:	INSTITUTIONAL OUTCOMES (IO)						
	a	b	c	d	e	f	g
a. Analyze broadly defined industrial technology processes by using analytical tools that enhance creativity, innovativeness, and intellectual curiosity to improve methods, processes, and systems that meet the industry standards;	✓	✓				✓	
b. Design and implement broadly defined industrial systems, components, products, or processes to meet specific industry needs with proficiency and flexibility in the area of specialization in accordance with global standards;	✓	✓		✓		✓	

c. Apply appropriate techniques, resources, and state-of-the-art industrial technology tools to meet current industry needs and use these modern tools and processes to improve and increase entrepreneurial activities upholding the safety and health standards of business and industry;	✓		✓	✓	✓		
d. Communicate with diverse groups of clienteles the appropriate cultural language with clarity and persuasion, in both oral and written forms, including understanding and giving of clear instructions, high comprehension level, effectiveness in delivering presentations and writing documents, and articulating technological innovation outputs;	✓	✓	✓	✓	✓		
e. Develop leadership and management skills in a team-based environment by making informed decisions, keeping the team motivated, acting and delegating responsibility, and inspiring positive changes in the organization by exercising responsibility with integrity and accountability in the practice of one's profession;	✓	✓	✓	✓	✓		
f. Practice the moral responsibilities of an industrial technologist to manage and balance wider public interest and uphold the norms and safety standards of the industrial technology profession;			✓	✓	✓	✓	✓
g. Demonstrate enthusiasm and passion for continuous personal and professional development in broadly defined industrial technology and effecting positive changes in the entrepreneurial and industrial endeavor; and	✓	✓	✓	✓	✓	✓	✓
h. Recognize the need for, and an ability to engage in lifelong learning.	✓	✓	✓	✓	✓	✓	✓

**1 COURSE CODE TR 2**

**2 COURSE TITLE** Technology Research 2

### **3 PREREQUISITE** Third year standing

**4 CREDITS**      **3 units**

## 5 COURSE DESCRIPTION

This course provides students with practical experience in conducting food product research, from data collection and statistical analysis to the presentation and interpretation of results. It emphasizes the application of proximate and sensory analysis, consumer testing, and market validation techniques. Students will develop a product prototype, compute key financial indicators such as break-even point, ROI, and payback period, and apply principles of intellectual property and commercialization. The course culminates in a product pitch and research defense, fostering innovation, scientific communication, and entrepreneurial thinking in food technology and applied research.

## **6 | COURSE LEARNING OUTCOMES (CLO) AND ITS RELATIONSHIPS TO PROGRAM OUTCOMES**

d.	Integrate intellectual property principles into product branding, packaging, and commercialization strategies;	✓	✓	✓	✓	✓	✓	✓
e.	Assess the feasibility and market potential of the developed product through business model analysis and industry validation; and	✓	✓	✓	✓	✓	✓	✓
f.	Communicate research findings and product innovations effectively through a formal research defense and product presentation.	✓	✓	✓	✓	✓	✓	✓

## 7 COURSE CONTENTS

WEEK	CONTENT	INTENDED LEARNING OUTCOMES (ILOs)	TEACHING AND LEARNING ACTIVITIES (TLA)	OUTCOMES-BASED ASSESSMENT (OBA)	COURSE LEARNING OUTCOME OUTCOMES (CLOs)
1	<b>Course Orientation</b> SKSU VMGO, Classroom Policies, Course Overview, Course Requirements, Grading System	At the end of the week, the student can: a. Discuss the University's VMGO, classroom policies, course overview, requirements and grading system	Discuss the VMGO of the University, the classroom policies, scope of the course, course requirements and grading system	a. Participation in discussions	a, b, c, d, e, f
2-4	<b>Chapter I: Data Collection / Gathering Techniques</b>	At the end of the week, the students can: a. Explain and demonstrate various data collection techniques such as survey/questionnaire, experiments, observation, interviews with structured questions, Automated Data Capture and Analytics Tools, and A/B Testing and Multivariate Testing	a. Lecture, hands-on, guided data collection, sample development discussion. b. Consultation with faculty advisors.	a. Presentation of collected data.	a
5-7	<b>Chapter II: Data Processing</b>	At the end of the week, the students can: a. Apply statistical tools in data analysis. b. Interpret research findings for product development.	a. Lecture on data analysis techniques. - Hands-on workshop using statistical tools.	a. Submission of analyzed data and preliminary results.	a

8-10	<b>Chapter III: Presentation of Results</b>	At the end of the week, the students can:  a. Construct clear, accurate tables, figures, and APA-style visual aids to present data effectively.	a. Workshop on formatting APA tables and graphs, peer critique of figures, Canva/Excel lab work.	a. Formatted APA tables, infographic poster submissions.	b
11-12	<b>Chapter IV: Interpretation and Discussion of Results</b>	At the end of the week, the students can:  a. Interpret statistical and chemical data in the context of consumer acceptability, nutritional goals, and research objectives.	a. Discussion of case studies, interpretation writing drills, comparison with literature.	a. Written paragraphs, literature-cited discussions, draft of Results and Discussion section.	b, c
13-14	<b>Chapter V: Business Model and Financial Analysis</b>	At the end of the week, the students can:  a. Apply Business Model Canvas to a product idea; compute break-even point, ROI, and payback period.	a. Workshop on business model development.	a. Submission of IP documentation and business model canvas.	c, d, e
15-16	<b>Chapter VII: Intellectual Property Protection and Commercialization Strategies</b>	At the end of the week, the students can:  a. Apply intellectual property principles in product development. b. Develop a commercialization strategy.	a. Business model development activity, financial computation workshop.	a. BMC submission, financial analysis worksheet, oral defense of financial plan.	c, d, e
17-18	<b>Chapter VII: Product Prototype and Final Defense</b>	At the end of the week, the students can:  a. Prepare a product prototype and defend the research output in a panel presentation.	a. Product development lab time, prototype testing, oral presentation rehearsals.	a. Prototype submission, final panel defense presentation.	f

Total No. of Hours : 54

## COURSE REQUIREMENTS

### COURSE REQUIREMENTS AND COURSE POLICIES

Each student is required to:

1. Develop a market-ready product prototype aligned with the research objectives.
2. Submit a complete manuscript of their research for binding and final evaluation by the advisory committee.
3. Design and submit a research poster for the Research Expo or public presentation.

## COURSE POLICIES

### Attendance and Participation

Regular attendance is expected. Active participation in class discussions, workshops, and group activities is required and will be part of the final grade.

### Submission of Requirements

All outputs must be submitted on or before the deadline. Late submissions are subject to deductions unless supported by valid reasons (e.g., illness, emergency) and approved by the instructor.

### Academic Honesty

Plagiarism, fabrication of data, and any form of academic dishonesty are strictly prohibited and will result in disciplinary action in accordance with university guidelines.

### Use of Artificial Intelligence (AI)

Students may use AI tools strictly for checking grammar and improving the flow of writing. The generation of entire paragraphs, data interpretation, or research content using AI is not allowed. All work must reflect the student's own analysis and understanding. Suspected misuse of AI will be subject to academic review.

### Collaborative Work

Group activities and consultations must involve the equitable contribution of all members. Roles and outputs must be clearly documented and submitted as a group report.

### Laboratory and Product Development

Students are expected to follow all laboratory protocols and safety procedures. Cleanliness, discipline, and proper use of equipment are mandatory during prototype development.

### Final Defense Etiquette

Formal presentation attire is required. Students must be prepared to defend their product concept and research methodology professionally before a panel.

## 9 GRADING SYSTEM AND RUBRICS FOR GRADING

### GRADING SYSTEM

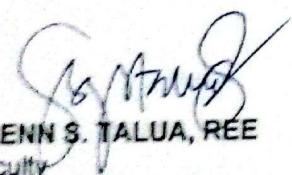
Assessment Task	Weight (%)
Data Analysis & Interpretation	15%
Product Development & Standardization	20%
Packaging, Branding & Labeling Compliance	10%
Intellectual Property & Commercialization Plan	15%
Market Feasibility & Business Pitch	20%
Research Defense & Product Presentation	20%
TOTAL	100%

**Materials used:** Laptop, Powerpoint presentations,  
Books, Online slides, Teacher-made slides and module

#### References:

1. Creswell, J.W. (2012). Educational research: planning, conducting, and evaluating quantitative and qualitative research. Pearson Education, Inc.4th Edition.
2. Polit, D.F. & Beck, C.T. (2004). Nursing research: principles and methods. Lippincott- Raven Publishers. 7th Edition. ISBN10: 0781737338

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Noted:



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