BUENAVISTA COMMUNITY COLLEGE
"Your Future is Our Commitment"
Cangawa, Buenavista, Bohol
Telefax: (038)5139169/Tel.: 513-9179

COURSE SYLLABUS

COURSE PROGRAM:	**BSIT- Bachelor of Science in Information Technology**
COURSE NUMBER:	**SAD101**
COURSE TITLE:	**System Analysis and Design**
COURSE UNITS:	**3 Units**
PRE-REQUISITES:	**None**

Vision

Buenavista Community College provides a supportive and transformational learning environment and excellent, flexible and accessible educational programs that will develop an educated population and globally competitive workforce.

Mission

Buenavista Community College provides affordable access to quality education and offers a dynamic, diverse and supportive environment that prepares students for academic, professional and personal success to meet the demands of our changing global society.

Goals

- Provides an environment that cultivates students' learning and success through ongoing assessment of learning outcomes and overall institutional effectiveness.
- Provides students with opportunities including programs and services that enable success in academic, career, personal and civic pursuits.
- Periodically updates the college's Master Plan, including new buildings and facilities to meet the needs of the time in order to build a more cohesive physical campus that is consistent with BCC's programmatic needs.
- Promotes a climate of collaboration and equity among all college constituencies.
- Maintains a pool of competent, committed, dedicated, well-trained and qualified faculty to deliver quality instruction.
- Links with TESDA, other colleges and universities, reputable companies, firms and establishments, non-governmental agencies.

IILO (INSTITUTIONAL GRADUATE ATTRIBUTE)

Institutional Graduate Attributes	Graduate Outcomes		Core Values
Community Service Oriented	IO1	Sensitive to the needs of the community by participating actively in community activities	SELFLESS

	IO2	Acts as a model in shaping and influencing others' lives to become civic and socially responsible members of the community.	UNDERSTANDING
	IO3	Initiates, implements and evaluates relevant activities that will respond to the needs of the community.	NATIONALISTIC
	IO4	Shows a strong sense of national awareness by espousing environmental and cultural preservation.	
Humane and Value-laden individuals	IO5	Respects equality of opportunities regardless of gender preference.	UNDERSTANDING
	IO6	Behaves ethically and responsibly in social, professional, and work environments in the light of personal faith.	VERSATILE
	IO7	Shows love, honesty, integrity, discipline, righteousness, self-worth in interaction with other members of the society.	BENEVOLENT
	IO8	Demonstrates professionalism in all endeavors.	VERSATILE
Highly Competent Professional	IO9	Performs competently and proficiently according to the standards of the profession and face challenges with ease and confidence.	EFFECTIVE
	IO10	Designs, implements, and evaluates new information pertinent to future professional practice and in day to day life with inventiveness, insight, originality and openness.	INDUSTRIOUS
	IO11	Innovates techniques in solving problems critically.	EFFECTIVE
	IO12	Generates ideas and concepts that would lead to societal and humanistic transformations grounded on research culture.	VERSATILE
	IO13	Empowers others to acquire leadership skills to create a positive environment in the workplace.	ALTRUISTIC
Effective Communicator	IO14	Promotes greater change of one's self reflected unto others through the acquired macro skills of listening, speaking, reading and writing.	ADAPTABLE EFFECTIVE
	IO15	Utilizes language effectively, meaningfully and responsibly in acquiring and delivering the information to the society.	EFFECTIVE
	IO16	Communicates competently and effectively both oral and written in a wide range of social, professional, and work contexts.	BENEVOLENT
Adaptive life- long-learner	IO17	Builds smooth relationships in any environmental context by deepening connections to others.	ADAPTABLE
	IO18	Sustains inquisitiveness in searching for life- long learning.	ALTRUISTIC
	IO19	Serves as an agent of continuous change in coping and living up to the societal demands.	TRUSTWORTHY
	IO20	Pursues the quest for knowledge for the improvement of the quality of life in the next generation.	

PILO (PROGRAM INTENDED LEARNING OUTCOME)

IT01	Apply knowledge of computing, science, and mathematics appropriate to the discipline
IT02	Understand best practices and standards and their applications

IT03	Analyze complex problems, and identify and define the computing requirements appropriate to its solution
IT04	Identify and analyze user needs and take them into account in the selection, creation, evaluation and administration of computer-based systems.
IT05	Design, implement, and evaluate computer-based systems, processes, components, or programs to meet desired needs and requirements under various constraints
IT06	Integrate IT-based solutions into the user environment effectively
IT07	Apply knowledge through the use of current techniques, skills, tools and practices necessary for the IT profession
IT08	Function effectively as a member or leader of a development team recognizing the different roles within a team to accomplish a common goal
IT09	Assist in the creation of an effective IT project plan
IT10	Communicate effectively with the computing community and with society at large about complex computing activities through logical writing, presentations, and clear instructions
IT11	Analyze the local and global impact of computing information technology on individuals, organizations, and society
IT12	Understand professional, ethical, legal, security and social issues and responsibilities in the utilization of information technology.
IT13	Recognize the need for and engage in planning self-learning and improving performance as a foundation for continuing professional development

CILO (COURSE INTENDED LEARNING OUTCOME)

At the end of this course, the students should be able to:

CILO 01: To present necessary concepts to provide the skills necessary to do the analysis, modeling, and the definition of information systems problems.
CILO 02: Give students an in-depth understanding of how information technology supports operational and business requirements in today's intensely competitive environment
CILO 03: To show how to develop a logical design, and develop and analyze alternatives involving implementation using packages, tailoring of packages, constructing software, or case tools
CILO 04: To develop skills for effective interpersonal communication to develop consensus using classical techniques as well as computer facilitated groupware to demonstrate and analyze small group dynamics as related to working with users
CILO 05: To develop quality criteria for assessment of customer satisfaction at all phases of the life cycle

INSTITUTIONAL INTENDED LEARNING OUTCOME	PROGRAM INTENDED LEARNING OUTCOME	COURSE INTENDED LEARNING OUTCOME
IO1: Sensitive to the needs of the community by participating actively in community activities **IO2:** Acts as a model in shaping and influencing others' lives to become civic and socially responsible members of the community. **IO3**: Initiates, implements and evaluates relevant activities that will respond to the needs of the community. **IO4:** Shows a strong sense of national awareness by espousing environmental and cultural preservation. **IO5**: Respects equality of opportunities regardless of gender preference. **IO8:** Demonstrates professionalism in all endeavors. **IO9:** Performs competently and proficiently according to the standards of the profession and face challenges with ease and confidence. **IO10:** Designs, implements, and evaluates new information pertinent to future professional practice and in day-to-day life with inventiveness, insight, originality and openness. **IO11:** Innovates techniques in solving problems critically. **IO12:** Generates ideas and concepts that would lead to societal and humanistic transformations grounded on research culture. **IO14:** Promotes greater change of one's self reflected unto others through the acquired macro skills of listening, speaking, reading and writing. **IO16:** Communicates competently and effectively both oral and written in a wide range of social, professional, and work contexts. **IO17:** Builds smooth relationships in any environmental context by deepening connections to others. **IO18:** Sustains inquisitiveness in searching for life- long learning. **IO19:** Serves as an agent of continuous change in coping and living up to the societal demands. **IO20:** Pursues the quest for knowledge for the improvement of the quality of life in the next generation.	**IT01**: Apply knowledge of computing, science, and mathematics appropriate to the discipline **IT02**: Understand best practices and standards and their applications **IT03**: Analyze complex problems, and identify and define the computing requirements appropriate to its solution **IT04:** Identify and analyze user needs and take them into account in the selection, creation, evaluation and administration of computer-based systems. **IT05:** Design, implement, and evaluate computer-based systems, processes, components, or programs to meet desired needs and requirements under various constraints **IT06**: Integrate IT-based solutions into the user environment effectively **IT07:** Apply knowledge through the use of current techniques, skills, tools and practices necessary for the IT profession **IT10**: Communicate effectively with the computing community and with society at large about complex computing activities through logical writing, presentations, and clear instructions **IT11**: Analyze the local and global impact of computing information technology on individuals, organizations, and society **IT12:** Understand professional, ethical, legal, security and social issues and responsibilities in the utilization of information technology. **IT13**: Recognize the need for and engage in planning self-learning and improving performance as a foundation for continuing professional development	**CILO 01**: To present necessary concepts to provide the skills necessary to do the analysis, modeling, and the definition of information systems problems. **CILO 02**: Give students an in-depth understanding of how information technology supports operational and business requirements in today's intensely competitive environment
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COURSE DESCRIPTION

System Analysis and Design Methods presents a practical approach to information technology and systems development. Student learn how to translate business requirements into information systems that support a company's short- and long-term objectives. Case studies and assignments teach analytical, problem solving, and decision-making techniques and learn how to blend traditional structured analysis skills, object-oriented methods, and project management techniques.

In this course, students with introductory information technology skills will learn to analyze and design information's systems. The course introduces students to the structured and object-oriented-analysis and design, use of modeling tools, adherence to methodological life cycle and project management standards.
This course examines the system development and modification process. It emphasizes the factors for effective communication and integration with users and user systems. It encourages interpersonal skills development.
Students with the basic life of information technology will learn to gather information in order to identify problems to be solved. They will determine system requirements and a logical design for information system. A project of limited scope will be designed during this course.

Students will investigate alternative solutions, and will determine feasibility of solutions. They will identify value added by the completion of the system. Students will be exposed to methods to support each stage of the development process.

COURSE CONTENT

- Introduction to System Analysis and Design
- Analyzing the Business Case Concept
- Requirements Modeling
- JAD & RAD
- Data and Process Modeling
- Introduction to Modeling

- Development Strategies Overview
- Introduction of System Design
- Data Design Concept
- System Architecture Introduction
- Systems Implementation Concepts

IILO CODE	PILO CODE	CILO CODE	TIME FRAME	COMPETENCIES	LEARNING CONTENT	OUTCOME (product/ performance)	TEACHING LEARNING ACTIVITIES (TLA)	MODALITY	ASSESSMENTS	RESOURCES
IO4 **IO8** **IO12** **IO14** **IO20**	**IT02** **IT03** **IT06** **IT10** **IT11** **IT12** **IT13**	**CILO 01** **CILO 02** **CILO 04**	**PRELIM** **Week 1**	Describe the impact of information technology Share the importance of system analysis and design and the role of system analyst in Information technology React in the role of Information System and its' impact to business world	**Introduction to System Analysis and Design** • Impact of Information Technology • Role of System Analysis and Design • Information System Components • Understanding Business • Impact of Internet • How Business uses Information Systems • Systems Development Tools and Techniques • System Dev't Methods • Planning and Modeling A Systems Development Project	Described the impact of information technology through oral recitation Shared the importance of system analysis and design and the role of system analyst in Information technology Reacted in the role of Information System and its' impact to business world through assignment	Virtual Lectures Meeting Electronic modules	Synchronous using Zoom Asynchronous	Virtual Oral recitation Assignment	Laptop Computer Android phone Module PPT Videos

IO2 **IO3** **IO9** **IO10** **IO11** **IO16** **IO18** **IO20**	**IT01** **IT02** **IT03** **IT04** **IT06** **IT07** **IT10** **IT11** **IT12** **IT13**	**CILO 02** **CILO 03** **CILO 04** **CILO 05**	**Week 2-3**	Learn how IT Project gets started and how a systems analysts evaluated a proposed project and determines its feasibility Show how to assess risks and feasibility demonstration Conduct a preliminary investigation, which requires fact-finding to see whether the request is feasible from an operational, technical, economic and schedule standpoint	**Analyzing the Business Case Concept** • Strategic Planning • Review of System request • How to Conduct a feasibility study • Steps in a preliminary investigation	Learned how IT Project gets started and how a systems analysts evaluated a proposed project and determines its feasibility through case study Showed how to assess risks and feasibility demonstration Conducted a preliminary investigation, which requires fact-finding to see whether the request is feasible from an operational, technical, economic and schedule standpoint through case study and group work using SWOT	Virtual Interactive Lectures Presentation Slides Electronic Modules Dialogue Simulation	Synchronous using Zoom Asynchronous Google Forms	Virtual Oral recitation Case Study Group work using SWOT Chapter Exercises	Laptop Computer Android phone Module PPT Videos Hand-outs
IO1 **IO2** **IO3** **IO5** **IO9** **IO10** **IO12** **IO16** **IO17**	**IT01** **IT02** **IT03** **IT04** **IT06** **IT11** **IT12**	**CILO 1** **CILO 02** **CILO 03** **CILO 05**	**Week 4**	Use requirements modeling, data and process modeling, and object modeling to represent the new system Choose appropriate fact-finding technique that bring users into the development process	**Requirements Modeling** • Fact-finding Techniques and team-based modeling methods ▪ JAD & RAD	Used requirements modeling, data and process modeling, and object modeling to represent the new system through reporting Chose appropriate fact-finding technique that bring users into the development process through case study	Virtual Interactive Lectures Presentation Slides Electronic Modules	Synchronous using Zoom Google Forms Asynchronous	Virtual Reporting Online Essay Exam Conduct an Online Interview	Laptop Computer Android phone Module PPT Videos

				Learn that CASE tools can offer powerful modeling features Conduct interviewing process guided with 7 steps and Survey with Questions		Learned that CASE tools can offer powerful modeling features through written exam Conducted interviewing process guided with 7 steps and Survey with Questions through Questionnaires			and Survey using Questionnaires Prelim Exam	
IO18 **IO20**	**IT01** **IT02** **IT03** **IT07** **IT11** **IT12**	**CILO 01** **CILO 03**	**MIDTERM** **Week 5-6**	Build a physical model that describes how the system will be constructed Create a system requirements proposal, and prepare for the system design stage of the SDLC Observe and learn how to use object-oriented modeling tools and techniques	**Data and Process Modeling** • Data Flow Diagram • Creating a Set of DFD's ▪ Guidelines for Drawing DFDs • Data Dictionary ▪ Documenting the Data Elements ▪ Documenting Data Flows ▪ Documenting the Records • Process Description Tools • Logical vs. Physical Models	Built a physical model that describes how the system will be constructed through project Created a system requirements proposal, and prepare for the system design stage of the SDLC through project proposal Observed and learned how to use object-oriented modeling tools and techniques through case study	Virtual Interactive Lectures Presentation Slides Electronic Modules	Synchronous using Zoom Asynchronous Google forms	Case study Project proposal	Laptop Computer Android phone Module PPT Videos
IO16 **IO18** **IO20**	**IT01** **IT02** **IT07** **IT12**	**CILO 01** **CILO 02** **CILO 03**	**Week 7**	Demonstrate how to use structured analysis techniques to develop a data and process model	**Introduction to Modeling** • Relationships among Objects and Classes	Demonstrated how to use structured analysis techniques to develop a data and process model of the proposed system through demonstration	Virtual Interactive Lectures	Synchronous using Zoom	Virtual Oral recitation Online Quiz	Laptop Computer

				of the proposed system Describe prototyping Prepare for the systems designs stage of the SDLC Interpret Object oriented analysis as another way to view and model system requirements	• Object Modeling with Modified Modeling Language • Organizing the Object Model	in drawing use case diagrams Described prototyping through oral recitation Prepared for the systems designs stage of the SDLC Interpreted Object oriented analysis as another way to view and model system requirements through written exam	Presentation Slides Electronic Modules	Asynchronous Google Forms	Virtual Demonstration in Drawing Use Case Diagrams Written exam (Object relationship Diagram for the system)	Android phone Module PPT Videos
IO9 IO10 IO18 IO20	**IT01 IT02 IT07 IT11 IT12**	**CILO 01 CILO 02 CILO 03 CILO 05**	**Week 8-9**	Build a logical model of the new information system Describe the remaining activities in the systems analysis stage, which include evaluation of alternative solutions, preparation of the system requirements document, and presentation of the systems requirements document to management	**Development Strategies Overview** • Impact of Internet • Outsourcing • In-house Software Development Options • Role of the System Analyst • Analyzing Cost and Benefits • The Software Acquisition process • Completion of System Analysis Tasks • Systems Design Guidelines • Prototyping	Built a logical model of the new information system through project Described the remaining activities in the systems analysis stage, which include evaluation of alternative solutions, preparation of the system requirements document, and presentation of the systems requirements document to management Described the transition to systems design, prototyping and	Virtual Interactive Lectures Presentation Slides Electronic Modules Virtual Demonstration	Synchronous using Zoom Asynchronous Google Forms	Project Online Quiz Midterm Exam (Written Documentation and Presentation of a Proposed system)	Laptop Computer Android phone Module PPT Videos

				Describe the transition to systems design, prototyping and systems design guidelines	• Future Trends in Software Development	systems design guidelines				
IO3 **IO10** **IO16** **IO18**	**IT01** **IT02** **IT03** **IT07** **IT11**	**CILO 01** **CILO 03**	**SEMI-FINAL** **Week 10**	Point out exactly what kind of output is needed to use in prototypes and mock-ups to obtain feedbacks throughout the design process Build an Interface that is easy to learn and use	**Introduction of System Design** • Output Design • Printed and Screen Output • User Interface Design • Input Design	Pointed out exactly what kind of output is needed to use in prototypes and mock-ups to obtain feedbacks throughout the design process through oral recitation and quiz Built an Interface that is easy to learn and use through group assignment	Virtual Interactive Lectures Presentation Slides Electronic Modules	Synchronous using Zoom Asynchronous Google Forms	Virtual Oral recitation Online Quiz Group Assignments	Laptop Computer Android phone Module PPT Videos
IO9 **IO11** **IO12** **IO19**	**IT01** **IT02** **IT06** **IT10** **IT11** **IT12**	**CILO 01** **CILO 02** **CILO 03**	**Week 11-12**	Develop a physical plan for data organization storage and retrieval Create entity-relationship diagrams that show the relationships among data elements Learn how to use normalization concepts to build an effective data design	**Data Design Concept** • DBMS Components • Web-based Database Design • Data Design Terminology • Entity-Relationship Diagrams • Database Models • Data Storage and Access • Data Control	Developed a physical plan for data organization storage and retrieval through assignment Created entity-relationship diagrams that show the relationships among data elements written exam Learned how to use normalization concepts to build an effective data design through group project	Virtual Interactive Lectures Presentation Slides Electronic Modules	Synchronous using Zoom Asynchronous	Assignment Group Project Semi-final Exam(Written Exam-Entity Relationship Diagram and Normalization)	Laptop Computer Android phone Module PPT Videos

				Be conscious of the codes that can be used to represent data items		Became conscious of the codes that can be used to represent data items				
IO9 **IO10** **IO18** **IO20**	**IT01** **IT02** **IT05** **IT11** **IT12**	**CILO 01** **CILO 05**	**FINAL** **Week 13-14**	Determine an overall architecture to implement the information system Examine the system architecture checklist Create an outline for System Design Specification	**System Architecture Introduction** • System Architecture Checklist • Planning the Architecture • Client/Server Architecture • Internet-Based Architecture • Processing Methods • System Design Completion	Determined an overall architecture to implement the information system through project Examined the system architecture checklist Created an outline for System Design Specification through individual assignment	Virtual Interactive Lectures Presentation Slides Electronic Modules	Synchronous using Zoom Asynchronous Google Forms	Project Online Quiz Individual Assignment (Outline for a System Design Specification)	Laptop Computer Android phone Module PPT Videos
IO9 **IO10** **IO12** **IO16** **IO18**	**IT01** **IT02** **IT03** **IT04** **IT05** **IT06** **IT07** **IT11** **IT12**	**CILO 01** **CILO 02** **CILO 03**	**Week 15-16**	Comprehend about application development testing, documentation, training, data conversion, system changeover and post-implementation evaluation of the results Be conscious about application development testing, documentation,	**Systems Implementation Concepts** • Software Quality Assurance • Structured Application Development • Object-Oriented Application • Testing the System • Documentation • Management Approval • System Installation and Evaluation	Comprehended about application development testing, documentation, training, data conversion, system changeover and post-implementation evaluation of the results through reporting Became conscious about application development testing, documentation, training, data conversion, system changeover and post-	Virtual Interactive Lectures Presentation Slides Project Electronic Modules	Synchronous using Zoom Asynchronous Google Forms	Virtual Reporting Online Quiz Chapter Exercise (Review Questions) Final Exam (Individual case Study and Project)	Laptop Computer Android phone Module PPT Videos

				training, data conversion, system changeover and post-implementation evaluation of the results Develop and implement a system	• Operational and Test Environments • Data Conversion • System Changeover • Post Implementation Tasks	implementation evaluation of the results Developed and implemented a system through individual case study and Project				

COURSE OUTPUT

As evidence of attaining the above learning outcomes, the students has to do and submit the following:

- Participate classes regularly
- Performed activities
- Submit Assignments and Projects
- Take Quizzes
- Take Major Examinations

GRADING SYSTEM

Attendance/Participation : 10%
Quizzes:15%
Assignments: 15%
Performance : 10%
Projects: 20%
Major Exams: 30%

Total: 100%

REFERENCES

Understanding System Analysis and Design
By: Harry J. Rosenblatt

PREPARED BY:	SARRAH E. APARECE
Date:	August 17, 2020