GUJARAT TECHNOLOGICAL UNIVERSITY

Syllabus for Master of Business Administration, 3rd Semester
Functional Area Specialization: Information Technology Management
Subject Name: Systems Analysis and Design (SAD)
Subject Code: 4539252

With effective from academic year 2018-19

1. Learning Outcomes:

Learning Outcome Component	Learning Outcome (Learner will be able to)
Business Environment and Domain Knowledge (BEDK)	• *Describe* the concepts of systems analysis and Information Systems Development Cycle.
Critical thinking, Business Analysis, Problem Solving and Innovative Solutions (CBPI)	• *Solve* a wide range of problems related to the analysis, design and construction of information systems.
Global Exposure and Cross-Cultural Understanding (GECCU)	• *Evaluate* the role of system analyst worldwide to understand the applications of IT projects in different context. • *Explore* recent trends in software projects.
Social Responsiveness and Ethics (SRE)	• *Discuss* the professional and ethical responsibilities to learn about the organizational and business context of systems development.
Effective Communication (EC)	• *Explain* the techniques of moving to the implementation phase.
Leadership and Teamwork (LT)	• *Design* information system requirements of a business using modeling techniques such as data flow diagrams and entity relationship diagrams. • *Develop* systems maintenance program.

LO – PO Mapping: Correlation Levels:
1 = Slight (Low); 2 = Moderate (Medium); 3 = Substantial (High), "-"= no correlation

Sub. Code: 4539252	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9
LO1: *Describe* the concepts of systems analysis and Information Systems Development Cycle.	3	3	1	3	1	1	-	1	2
LO2: *Solve* a wide range of problems related to the analysis, design and construction of information systems.	3	2	3		2	2	-	2	3
LO3: *Evaluate* the role of system analyst worldwide to understand the applications of IT projects in different context.	2	2	3	1	3	1	-	-	1
LO4: *Explore* recent trends in software projects.	2	2	1	1	3	2	1	-	1
LO5: *Discuss* the professional and ethical responsibilities to learn about the organizational and business context of systems development.	1	3	3	3	2	3	3	2	2
LO6: *Explain* the techniques of moving to the implementation phase.	2	3	3	3	1	1	-	-	1

LO7: Design information system requirements of a business using modeling techniques such as data flow diagrams and entity relationship diagrams.	1	2	3	1	1	3	1	-	2
LO8: *Develop* systems maintenance program.	3	2	3	2	1	3	-	2	3

2. Course Duration: The course duration is of **40 sessions of 60 minutes each.**

3. Course Contents:

Module No:	Contents	No. of Sessions	70 Marks (External Evaluation)
I	**Introduction**: • System Definition and concepts • System Environments and Boundaries. • Real-time and distributed systems • Basic principles of successful systems • Structured System Analysis and Design. **Systems Analyst:** • Role and Need of Systems Analyst. • Qualifications and responsibilities. • System Analysis as a Profession. **System Development Cycle:** • Introduction to Systems Development Life Cycle (SDLC). • Various phases of SDLC: o Study, Analysis, Design, Development, Implementation, Maintenance	10	18
II	**Systems Documentation Consideration**: • Principles of Systems Documentation • Types of documentation and their importance • Enforcing documentation discipline in an organization System Planning; **Assessing Project Feasibility:** • Technical, Operational, Economic • Cost Benefits Analysis • Schedule, legal and contractual, Political. • Modern Methods for determining system requirements • Assessing the value of IT investment	10	18
III	**Modular and Structured Design:** • Module specifications. • Top-down and bottom-up design.	10	17

	• Module coupling and cohesion. • Structure Charts. **System Design and Modelling**: • Process Modeling, logical and physical design • Conceptual Data Modeling: o Entity Relationship Analysis, Entity-Relationship Modeling, DFDs. **Process Description:** • Structured English • Decision Tree, Decision Tables. • Documentation: o Data Dictionary, Recording Data Descriptions. • Input and Output: o Classification of forms, Input/output forms design. o User-interface design, Graphical interfaces. o Standards and guidelines for GUI design o Unified Modeling Language o The Systems Analysts Toolkit – Communication Tools, CASE Tools,		
IV	**System Implementation, Maintenance/Audit (Software Applications and IT Projects):** • Planning considerations. • Conversion methods, procedures and controls. • System acceptance criteria. **System Implementation and Maintenance**: • Financial Analysis Tools • Project Management tools • System Evaluation and Performance. • Testing and Validation. • Preparing User Manual. • Maintenance Activities and Issues	10	17
V	**Practical Application with reference to SAD:** • A project report ona chosen Information System based on a business requirement. They will have to analyze the feasibility of developing the system identified, analyze its requirements and subsequently design the system and its interfaces using the concepts studied in the subject.	---	(30 marks CEC)

4. Teaching Methods:

The following pedagogical tools will be used to teach this course:

- Lectures
- Case Discussions
- Audio-visual Material (Using CDs/Clippings/ online videos)
- Assignments and Presentations

5. Evaluation:

The evaluation of participants will be on continuous basis comprising of the following elements:

A	Continuous Evaluation Component comprising of Projects / Assignments / Quiz / Class Participation / Class test / Presentation on specific topic etc	(Internal Assessment-50 Marks)
B	Mid-Semester examination	(Internal Assessment-30 Marks)
C	End –Semester Examination	(External Assessment-70 Marks)

6. Reference Books:

Sr. No.	Author	Name of the Book	Publisher	Year of Publication
1	Jeffrey A. Hoffer, Joey F. George, Joseph S. Valacich	Modern Systems Analysis and Design	Pearson	Latest Edition
2	Roger Pressman, Bruce Maxim	Software Engineering	McGraw Hill	2014 / 8th
3	Kenneth A. Kendall, Julie E. Kendall	System Analysis and Design	Pearson	2013 / 9th
4	Waman S. Jawadekar	Software Engineering Principles and Practice	McGraw Hill	Latest Edition
5	Alan Dennis, Barbara Haley Wixom, Roberta M. Roth	System Analysis and Design with UML Version 2.0 An Object Oriented Approach	Wiley	2014 / 7th
6	Gary B. shelly, Thomas J. Cashman and Harry J. Rosenblant	Systems Analysis and Design	Cengage Learning	2017 / 11th

Note: Wherever the standard books are not available for the topic appropriate print and online resources, journals and books published by different authors may be prescribed.

7. List of Journals / Periodicals / Magazines / Newspapers / Web Resources, etc.

1. Journal of Systems Analysis and Software Engineering
2. Global Journal of Technology and Optimization – Software Design
3. Indian Journal of Science and Technology
4. Cybernetics and Systems Analysis
5. Journal of Advanced Database Management & Systems
6. Analytics India Magazine
7. Data Quest