



પરિપત્ર:

ભક્તકવિ નરસિંહ મહેતા યુનિવર્સિટીની કોમ્પ્યુટર સાયન્સ વિદ્યાશાખાનાં અભ્યાસક્રમ ચલાવતી તમામ સંલગ્ન કોલેજોનાં આચાર્યશ્રીઓને સવિનય જણાવવાનું કે કોમ્પ્યુટર સાયન્સ વિદ્યાશાખા હેઠળનો NEP-૨૦૨૦ અંતર્ગત સ્કીલ એન્હાન્સમેન્ટ કોર્સનો સેમેસ્ટર-૫ નો અભ્યાસક્રમ આ સાથે સામેલ છે. આ બાસ્કેટમાં કોમ્પ્યુટર સાયન્સનાં વિષયો આપવામાં આવેલ છે.

માનનીય કુલપતિશ્રીની મંજૂરી અનુસાર સદર અભ્યાસક્રમ શૈક્ષણિક વર્ષ જુન, ૨૦૨૫ થી અમલવારી કરવાની રહે છે. કોમ્પ્યુટર સાયન્સ વિદ્યાશાખાનાં અભ્યાસક્રમ ચલાવતી તમામ સંલગ્ન કોલેજો દ્વારા તેની અમલવારી કરવા જણાવવામાં આવે છે.



[Signature]
12/6/2025

ખાસ ફરજ પરના અધિકારી
(એકેડેમિક)

ક્રમાંક/બીકેએનએમયુ/એકેડેમિક/૨૭૩/૨૦૨૫

ભક્તકવિ નરસિંહ મહેતા યુનિવર્સિટી,

સરકારી પોલીટેકનિક કેમ્પસ,

ભક્તકવિ નરસિંહ મહેતા યુનિવર્સિટી રોડ,

ખડીયા, જૂનાગઢ-૩૬૨૨૬૩

તા. ૧૨.૦૬.૨૦૨૫

પ્રતિ,

- ભક્તકવિ નરસિંહ મહેતા યુનિવર્સિટી સંલગ્ન કોમ્પ્યુટર સાયન્સ વિદ્યાશાખાનાં અભ્યાસક્રમો ચલાવતી તમામ કોલેજોના આચાર્યશ્રીઓ તરફ....

નકલ સાદર રવાના:-

- માન.કુલપતિશ્રી/કુલસચિવશ્રીનાં અંગત સચિવશ્રી.
- પરીક્ષા નિયામકશ્રી, ભક્તકવિ નરસિંહ મહેતા યુનિવર્સિટી, જૂનાગઢ

નકલ રવાના જાણ તથા યોગ્ય કાર્યવાહી અર્થે:

- સીસ્ટમ મેનેજરશ્રી, આઈ.ટી.સેલ વિભાગ (વેબસાઇટ ઉપર પ્રસિદ્ધ થવા અર્થે.)



BHAKTA KAVI NARSINH MEHTA UNIVERSITY
JUNAGADH



BOARD OF STUDIES

FACULTY OF COMPUTER SCIENCE

BASKET FOR SKILL ENHANCEMENT COURSE

(SEMESTER- V)

EFFECTIVE FROM JUNE, 2025

BHAKTA KAVI NARSINH MEHTA UNIVERSITY
Skill Enhancement Course (SEC)
Syllabus for Faculty of Computer Science as per NEP
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Sr. No	Topic	Page No.
1.	System Analysis and Design	02
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Course Level	5.5		Internal Marks	25
Programme	U.G.		External Marks	25
Semester	V		Practical Internal	0
Course Type	SEC		Practical External	0
Course Credit	02		Prac. Ext. Exam Time	-
Teaching Hours	Theory- 30 Practical-00		Total	50
Course Code			Exam Duration	1:00 Hrs.
Course Title	System Analysis and Design			

Course Objectives:

- Understand the phases and significance of the Software Development Life Cycle (SDLC).
- Grasp foundational concepts of Software Engineering and its importance in structured software development.
- Differentiate between Quality Assurance (QA) and Quality Control (QC) in the software development process.
- Understand the principles and processes of software testing, including various testing levels and types.
- Identify and apply different software testing techniques, including black box, white box, and grey box testing.
- Explain and perform non-functional testing, including performance, load, stress, usability, and security testing.
- Compare and evaluate various SDLC models such as Waterfall, V-Model, Spiral, Prototyping, etc.
- Interpret and create software engineering diagrams like DFDs, E-R diagrams, UML diagrams (Class, Use-case).
- Utilize tools like Microsoft Visio or Draw.io for software designing and document

Course Outcomes:

- Describe the key phases of SDLC (requirement, design, development testing, deployment, maintenance).
- Compare different SDLC models and choose the appropriate model based on project requirements.
- Understand the fundamental concepts of system analysis and design
- Analyze and model system requirements using DFDs and ERDs
- Design and document a basic information system
- Use standard tools for system modeling and design (e.g., Draw.io, Lucid chart, visio)
- Demonstrate project understanding through documentation and presentation

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Course Content:

Sem	Unit No.	Title of the Unit and the Topics	Teaching Hours
5	1	• Introduction to System ○ Types of Systems ○ Role and Responsibilities of System Analyst • SDLC ○ Phases: Planning, Analysis, Design, Implementation, Maintenance • Fact – finding techniques/ Requirement Analysis ○ Interview, Questionnaire, Record review and observation • Introduction to Quality assurance (QA) and Quality Control (QC) • Software Faults and Failures • Introduction to software Testing • Techniques of software Testing Testing Tools	15
	2	• Software Development Life Cycle Models • Open-source Software, Freeware, Shareware • Timeline chart • Data Flow Analysis Tool ○ Data Dictionary ○ Types of Data Dictionary DFD (Data Flow Diagram), E-R Diagram, Use-Case Diagram (Using Visio, draw.io,etc)	15

Suggested Reading:

References Book:

1. Analysis & Design of Information System - James A. Sen.
2. Pankaj Jalote, "Software Engineering – A Precise Approach", Wiley India
3. UML Distilled by Martin Fowler, Pearson Edition, 3rd Edition
4. Fundamentals of Software Engineering – RajibMall (PHP)
5. Software Engineering – A Practitioner's Approach – Pressman
6. UML – A Beginner's Guide –Jasson Roff – TMH
7. Roger Pressman, "Software Engineering"

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Web site References:

1. http://en.wikipedia.org/wiki/Software_testing
2. <http://www.onestoptesting.com/>
3. <http://www.opensourcetesting.org/functional.php>
4. <https://www.geeksforgeeks.org/>

INTERNAL EVALUATION SCHEME		
NO	Particulars	Marks
1	Mid Semester Exam (Mandatory)	13
2	Class Test	03
3	Open book exam/test	03
4	Open note exam/test	03
5	Self-test/ Online test	03
6	Essay/Article writing	03
7	Quizzes/Objective test	03
8	Class assignment	03
9	Home assignment	03
10	Reports Writing	03
11	Research/Dissertation	03
12	Case Studies	03
13	Viva/Oral exam	03
14	Group Discussion	03
15	Role Play	03
16	Paper presentation/Seminar	03
17	Language Lab work	03
18	Interview	03
19	Craft work	03
20	Co-curricular work	03
21	Field Assignment	03
22	Poster Presentation	03
23	Attendance	03
24	Project Work	03
	Total	25
Note: Sr.No.1 is mandatory. <u>Select any Four from Sr.No.2 to 24.</u> Each Contains three marks. Student should secure 09 Marks for passing in internal Exam.		

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Paper Style

Ques. No.	Particulars	From which Unit	Marks
1	Questions (Any Two Out Of Four)	1	10
2	Questions (Any Two Out Of Four)	2	10
3	Questions (Any One Out Of Two)	From Each Unit	5
		Total Marks	25

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Course Level	5.5		Internal Marks	25
Programme	U.G.		External Marks	25
Semester	5		Practical Internal	-
Course Type	Skill Enhancement Course-5		Practical External	-
Course Credit	02		Prac.Ext.Exam Time	-
Teaching Hours	30		Total	50
Course Code			Exam Duration	1 Hour
Course Title	Writing Skills for Science Students			

Course Description:

- As science students have learnt grammar skills and conversational skills in the previous skill enhancement courses, this paper brings writing skills in focus. Science field has long history of record keeping and journalling in written mode.
- This paper is designed to hon writing skills of the students which can help them in further studies as well in future careers. This paper includes scientific, technical, comprehensive, creative and visual writing. The assessment pattern focuses on written pieces by students in the final examination.

Course Objectives:

- To expose students to various writing skills pertaining to science field.
- To acquaint students with various modes of writing.
- To develop independency in students for writing short pieces in English.
- To develop preparedness for current employment environment.

Course Learning Outcomes: After completion of the course:

- Students will be able to identify various writing skills pertaining to science field.
- Students will be able to comprehend various modes of writing.
- Students will be able to draft short pieces in English.
- Students will be able to tackle writing tasks prevalent in current employment environment.

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Course Contents

Sem	Unit No.	Syllabi	Teaching Hours
5	1	1. Five-point summarization (Students will learn to write summary of a paragraph in five bullet points.) 2. Technical writing (Students will learn to write a short piece technically on a laboratory instrument or a process in given format.) 3. Scientific writing (Students will write a short piece of scientific writing using IMRaD format.)	20
	2	1. Reflective writing based on a thought (Students will learn to write paragraphs based on a thought or idea given to them using creative and analytical writing skills.) 2. Poster writing (Students will write a visual draft of poster based on given topics.)	10
List of prescribed topics for 1.2, 1.3, 2.1 & 2.2 has been given, examiners will select topics from the list for the above-mentioned writing skills.			

Suggested Reading:

1. Clark, Peter. *Writing Tools*. Litte, Brown Spark, 2008
2. Edwards, Julian. *Write Reflectively*. SAGE Publication, 2023
3. Paul, D. S. *Advanced Writing Skills*. Goodwill Publishing House, 2022
4. Gairns, Ruth. *Oxford Word Skills*. Oxford University Press, 2012

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List of prescribed topics:

Unit	Writing skill	Topics prescribed
1	Five-point summarization	An unseen paragraph will be asked
	Technical writing	• How to Use a Digital Thermometer • How to Use a Microscope • How to Clean Laboratory Glassware • How to Store Chemicals Safely in a Lab • How to Prepare a Slide for Microscopic Observation (Format of technical writing will include Title, Objectives, Materials needed or Steps of procedure.)
	Scientific writing	• Effect of Temperature on Dissolving Sugar • How Light Affects Plant Growth • Effect of Salt on Boiling Point of Water • Simple Pendulum: Measuring Time Period • Testing Acidity and Basicity Using Litmus Paper (Format of scientific writing will include Introduction, Method, Results and Discussion.)
2	Reflective writing based on a thought	• Not all those who wander are lost • True wealth is not measured in money or possessions • You don't need a reason to help people • Dreams are today's answers to tomorrow's questions • Change begins at the end of your comfort zone (Format of reflective writing will be simple paragraphs on the topic.)
	Poster writing	• Say No to Plastic • Stop Cyberbullying • Road Safety: Follow Traffic Rules • My Dream City • Plant Trees, Save the Planet (Format of poster writing will be a full-page rough draft of a poster with visuals.)

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INTERNAL EVALUATION SCHEME		
NO	Particulars	Marks
1	Mid Semester Exam (Mandatory)	13
Moreover, any four components from the following can be selected for internal evaluation of students:		
2	Class Test	03
3	Open book exam/test	03
4	Open note exam/test	03
5	Self-test/ Online test	03
6	Essay/Article writing	03
7	Quizzes/Objective test	03
8	Class assignment	03
9	Home assignment	03
10	Reports Writing	03
11	Research/Dissertation	03
12	Case Studies	03
13	Viva/Oral exam	03
14	Group Discussion	03
15	Role Play	03
16	Paper presentation/Seminar	03
17	Language Lab work	03
18	Interview	03
19	Craft work	03
20	Co-curricular work	03
21	Field Assignment	03
22	Poster Presentation	03
23	Attendance	03
24	Project Work	03
Total		25

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Paper Style

Ques. No.	Particulars	Unit	Marks
1	Attempt a five-point summarization of the given paragraph.	1	5
2	Write a technical note on one of the following topics. (Any one of the two)		5
3	Write a scientific note on one of the following topics in IMRaD format. (Any one of the two)		5
4	Write a reflective paragraph on a thought from list given below. (any one of the two)	2	5
5	Write a visual draft of a poster from the topics given below. (any one of the two)		5
	Total Marks		25