

KSKV Kachchh University
Program: BCA
Semester: VI
Syllabus with effect from June 2018

Course Type	Course Code	Name of the Course	T/P	Credit	Exam Duration In Hrs	Components Of Marks		
						Internal	External	Total
Core Courses	CCCS-623	Industrial Project	T/P	16	4	100	300	400
Electives (Any One)	CECS-611	Software Engineering	T	04	2:15	40	60	100
	CECS-612	Web Searching Technology and Search Engine Optimization	T	04	2:15	40	60	100
Electives (Any One)	CECS-613	Software Project Management	T	04	2:15	40	60	100
	CECS-614	Object Oriented Technology	T	04	2:15	40	60	100
Total				24		180	420	600

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Paper Code: CCCS-623	Total Credit : 16
Title of Paper: Industrial Project	Total Marks : 300
	Time : --

- The project definition should be initiated during the summer break after semester IV examination.
- “Shodh Yatras” to industries will help achieving this first major step.
- Definition should ideally reflect current trends of IT industry and it should have a high application potential.
- A “Letter of Acceptance” from the company has to be obtained and submitted to the college/department by the student.
- Team size for the project can consist of maximum 03 (three) students.
- Project plan along with division of work amongst teammates would have been prepared and got certified by the head of the college/department within a maximum of 10 (ten) days of the start of the project.
- Student must not pay any fee whatsoever to the company where he/she is selected for project.
- Internal guides must devote the time allocated as per the time table to guide the students for the project the time allocation will be in accordance with the scheme for 6th semester project as given.
- Coding standards should be followed meticulously. At the minimum, the code should be self documented, modular, and should use the meaningful naming convention.
- Database design is mandatory. At least portions of code (preferably full code) are mandatory. Student may be asked to write the code related to the project during examination.
- A report should be prepared for the project work which should be duly signed by the internal project guide and head of the college/department. It should also include a “Certificate of Completion” from the company.
- The report should be printed in colour and or greyscale and should be properly bound in spiral or hard cover.
- A copy as specified above has to be submitted at the time of external examination.
- The format of the external examination would consist of following components:

Sr.	Component	Weightage
1.	Explanation of Project	20 %
2.	Explanation of Code - Database	20 %
3.	Documentation (Report)	20 %
4.	Viva-Voce	40 %

- Above structure may be followed by the colleges during the internal examination.

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Paper Code: CCCS-623	Total Credit : 16
Title of Paper: Industrial Project	Total Marks : 300
	Time : --

Unit	Description	Total Marks
	Q.1 Explanation of Project	60
	Q.2 Explanation of Code - Database	60
	Q.3 Documentation – Report	60
	Q.4 Viva – Voce	120
		300

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Paper Code: CECS-611	Total Credit : 4
Title of Paper: Software Engineering	Total Marks : 60
	Time : 2:15 Hrs

Unit	Description	Weighting
I	Introduction to Software Engineering : Definitions - Size Factors - Quality and Productivity Factors - Managerial Issues - Planning a Software Project : Defining the Problem - Goals and Requirements - Solution Strategy - Planning the Development Process : Various Models - Planning an Organizational Structure - Planning Activities	25%
II	Software cost estimation: Introduction - Software Cost Factors - Software Cost Estimation Techniques - Stating Level estimation - Estimating Software Maintenance Costs Software Requirements Definition - Software Requirements Specification - Specification Techniques - Languages and Processors for Requirements.	25%
III	Software design - Design concepts - Modules And Modularization Criteria - Design Notations - Design Techniques - Design Considerations - Real Time and Distributed System Design - Test Plans - Milestones, Walkthroughs and Inspections - Design Guidelines Implementation Issues : Structure Loading Techniques - Coding Style - Standards And Guidelines - Documentation Guidelines.	25%
IV	Modern programming Language Features - Type Checking - Separate Compilation - User Defined Data Types - Data Abstraction - Scoping Rules - Exception Handling - Currency Mechanism Verification And Validation Techniques - Quality Assurance - States Analysis - Symbolic Excretion Unit - Testing And Debugging - System Testing - Formal Verification Software	25%

Basic Text & Reference Books :-	
1.	Software Engineering Concepts 1997 Edition Author : RICHARD FAIRLEY Publishers : TATA Mc GRAW-Hill Edition.
2.	Software Engineering VI Edition, Author : ROGER S . PRESSMAN Publishers TATA McGRAW - HILL International Edition

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Paper Code: CECS-611	Total Credit : 4
Title of Paper: Software Engineering	Total Marks : 60
	Time : 2:15 Hrs

Unit	Description		Total Marks
I	Q.1(A) Medium Questions (Any Two)	07	15
	Q.1(B) Medium Questions / Long Questions (Any Three)	08	
II	Q.2(A) Medium Questions (Any Two)	06	15
	Q.2(B) Medium Questions / Long Questions (Any Three)	09	
III	Q.3(A) Medium Questions / Long Questions (Any Two)	06	15
	Q.3(B) Medium Questions / Long Questions (Any Two)	08	
IV	Q.4(A) Medium Questions / Long Questions (Any Two)	07	15
	Q.4(B) Medium Questions / Long Questions (Any Two)	08	

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Paper Code: CECS-612	Total Credit : 4
Title of Paper: Web Searching Technology and Search Engine Optimization	Total Marks : 60
	Time : 2:15 Hrs

Unit	Description	Weighting
I	<p>The Mission of Search Engines The Market Share of Search Engines The Human Goals of Searching Determining Searcher Intent: A Challenge for Both Marketers and Search Engines How People Search? How Search Engines Drive Commerce on the Web? Eye Tracking: How Users Scan Results Pages? Click Tracking: How Users Click on Results? Natural Versus Paid Understanding Search Engine Results Algorithm-Based Ranking Systems: Crawling, Indexing, and Ranking, Determining Searcher Intent and Delivering Relevant, Fresh Content, Analyzing Ranking Factors Using Advanced Search Techniques Vertical Search Engines, Country-Specific Search Engines</p>	25%
II	<p>Setting SEO Goals and Objectives Developing an SEO Plan Prior to Site Development Understanding Audience and Finding Niche SEO for Raw Traffic, SEO for E-Commerce Sales SEO for Mindshare/Branding, SEO for Lead Generation and Direct Marketing, SEO for Reputation Management SEO for Ideological Influence The Major Elements of Planning Identifying the Site Development Process and Players Defining Site's Information Architecture Auditing an Existing Site to Identify SEO Problems Identifying Current Server Statistics Software and Gaining Access, Determining Top Competitors Assessing Historical Progress Benchmarking Current Indexing Status, Benchmarking Current Rankings, Benchmarking Current Traffic Sources and Volume, Leveraging Business Assets for SEO Combining Business Assets and Historical Data to Conduct SEO/Website SWOT Analysis</p>	25%

III	<p>The Theory Behind Keyword Research</p> <p>Traditional Approaches: Domain Expertise Site Content Analysis, Keyword Research Tools Determining Keyword Value/Potential ROI, Leveraging the Long Tail of Keyword Demand, Trending, Seasonality, and Seasonal Fluctuations in Keyword Demand Making Site Accessible to Search Engines Creating an Optimal Information Architecture Root Domains, Subdomains, and Microsites Optimization of Domain Names/URLs Keyword Targeting, Content Optimization Duplicate Content Issues Controlling Content with Cookies and Session IDs, Content Delivery and Search Spider Control, Redirects, Content Management System (CMS) Issues, Optimizing Flash, Best Practices for Multilanguage/Country Targeting</p>	25%
IV	<p>The Opportunities in Vertical Search</p> <p>Optimizing for Local Search Optimizing for Image Search Optimizing for Product Search Optimizing for News, Blog, and Feed Search Others: Mobile, Video/Multimedia Search Why Measuring Success Is Essential to the SEO Process Measuring Search Traffic Tying SEO to Conversion and ROI Competitive and Diagnostic Search Metrics Key Performance, Indicators for Long Tail SEO</p>	25%

Basic Text & Reference Books :-	
1.	The Art of SEO : Mastering Search Engine Optimization By Eric Enge, Stephan Spencer, Rand Fishkin, Jessie C Stricchiola, O'Reilly Media, October, 2009
2.	Web Searching Technology and Search Engine Optimization[ISBN: 978 - 93 - 81786 - 92 - 5] by Bharat & Company
3.	SEO: Search Engine Optimization Bible, By Jerri L. Ledford, 2nd Edition, Wiley India, April, 2009
4.	SEO Warrior: Essential Techniques for Increasing Web Visibility By John I Jerkovic, O'Reilly Media, November, 2009

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Paper Code: CECS-612	Total Credit : 4
Title of Paper: Web Searching Technology and Search Engine Optimization	Total Marks : 60
	Time : 2:15 Hrs

Unit	Description		Total Marks
I	Q.1(A) Medium Questions (Any Two)	07	15
	Q.1(B) Medium Questions / Long Questions (Any Three)	08	
II	Q.2(A) Medium Questions (Any Two)	06	15
	Q.2(B) Medium Questions / Long Questions (Any Three)	09	
III	Q.3(A) Medium Questions / Long Questions (Any Two)	06	15
	Q.3(B) Medium Questions / Long Questions (Any Two)	08	
IV	Q.4(A) Medium Questions / Long Questions (Any Two)	07	15
	Q.4(B) Medium Questions / Long Questions (Any Two)	08	

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Paper Code: CECS-613	Total Credit : 4
Title of Paper: Software Project Management	Total Marks : 60
	Time : 2:15 Hrs

Unit	Description	Weighting
I	Introduction Definition of the project Project specification and parameters Principles of Project management Project management life cycle	25%
II	Software Project Planning Project activities and Work Breakdown Structure (WBS) Criteria for completeness in the WBS Activity Resource Requirements and Cost Joint project planning session Project management plan	25%
III	Project Economics and Risk Management Project costing, empirical project estimation techniques, decomposition techniques, algorithmic methods, automated estimation tools Risk concepts and identification, risk assessment and control, risk components and drivers, risk tracking and monitoring, risk mitigation and management	25%
IV	Project Scheduling and Tracking Techniques Introduction to project scheduling and tracking Effort estimation techniques Task network and scheduling methods, monitoring and control progress, Graphical reporting tools	25%

Basic Text & Reference Books :-	
1.	John J. Rakos, "Software Project Management", 1998, Prentice Hall.
2.	Walker Royce, "Software Project Management", 2001, Pearson Education
3.	Roger S. Pressman, "Software Engineering", 2001, McGraw Hill

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Paper Code: CECS-613	Total Credit : 4 Total Marks : 60 Time : 2:15 Hrs
Title of Paper: Software Project Management	

Unit	Description		Total Marks
I	Q.1(A) Medium Questions (Any Two)	07	15
	Q.1(B) Medium Questions / Long Questions (Any Three)	08	
II	Q.2(A) Medium Questions (Any Two)	06	15
	Q.2(B) Medium Questions / Long Questions (Any Three)	09	
III	Q.3(A) Medium Questions / Long Questions (Any Two)	06	15
	Q.3(B) Medium Questions / Long Questions (Any Two)	08	
IV	Q.4(A) Medium Questions / Long Questions (Any Two)	07	15
	Q.4(B) Medium Questions / Long Questions (Any Two)	08	

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Paper Code: CECS-614	Total Credit : 4 Total Marks : 60 Time : 2:15 Hrs
Title of Paper: Object Oriented Technology	

Unit	Description	Weighting
I	<p>Structural Modeling and Analysis Definition of object, Types of objects, Class and Instances, Modeling techniques, Examples of structural models, Structural analysis techniques, Domain modeling and analysis process.</p> <p>Use Case Modeling and Analysis Requirement elicitation, UC modeling techniques and examples, UC analysis techniques, UC modeling and analysis process, Tricks and tips in using UC analysis</p>	25%
II	<p>Dynamic Modeling and Analysis Scenario modeling techniques, sequence diagrams, collaboration diagrams, Examples of scenario modeling. Dynamic modeling using statechart diagrams, Activity diagrams. Dynamic analysis techniques, Dynamic modeling and analysis process, Tricks and tips.</p>	25%
III	<p>Implementing UML Specification Implementing class diagrams, persistent classes, Implementing activity diagrams, state diagrams, interaction diagrams</p>	25%
IV	<p>View Alignment Techniques Software development methods, limitations, Unified Modeling language, shortcomings, Current object-oriented approaches, View Alignment techniques- architecture, application techniques, Method creation and customization, Case study</p>	25%

Basic Text & Reference Books :-	
1.	Object-Oriented Technology : Tsang Lau and Leung (Tata McGraw-Hill) (All Chapters)
2.	UML, Schaum's Outline Series : Bennet, Skelton and Lunn (McGraw-Hill)
3.	Object Oriented Analysis and Design : Mike O'Docherty (Wiley India)

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Paper Code: CECS-614	Total Credit : 4 Total Marks : 60 Time : 2:15 Hrs
Title of Paper: Object Oriented Technology	

Unit	Description	Total Marks
I	Q.1(A) Medium Questions (Any Two)	07
	Q.1(B) Medium Questions / Long Questions (Any Three)	08
II	Q.2(A) Medium Questions (Any Two)	06
	Q.2(B) Medium Questions / Long Questions (Any Three)	09
III	Q.3(A) Medium Questions / Long Questions (Any Two)	06
	Q.3(B) Medium Questions / Long Questions (Any Two)	08
IV	Q.4(A) Medium Questions / Long Questions (Any Two)	07
	Q.4(B) Medium Questions / Long Questions (Any Two)	08