NPR College of Engineering & Technology

NPR Nagar, Natham, Dindigul - 624401, Tamil Nadu, India.
Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai.
An ISO 9001:2015 Certified Institution.
Phone No: 04544- 246 500, 246501, 246502.
Website : www.nprcolleges.org, www.nprcet.org, Email:nprcetprincipal@nprcolleges.org

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

COURSE INFORMATION SHEET

PROGRAMME: Computer Science & Engineering	**DEGREE:** B.E
COURSE: Internet Programming	**SEMESTER: 6 CREDITS: 3**
COURSE CODE: CS8651 / C310	**COURSE TYPE:** CORE
COURSE AREA/STREAM : Programming	**CONTACT HOURS:** 5+1 hours/Week.
CORRESPONDING LAB COURSE CODE (IF ANY): CS8661	**LAB COURSE NAME :** Internet Programming Lab
COURSE COORDINATOR NAME : Mr.J.Viswanath	

SYLLABUS:

MODULE	DETAILS	HOURS
I	Web Essentials: Clients, Servers and Communication – The Internet – Basic Internet protocols – World wide web – HTTP Request Message – HTTP Response Message – Web Clients – Web Servers – HTML5 – Tables – Lists – Image – HTML5 control elements – Semantic elements – Drag and Drop – Audio – Video controls - CSS3 – Inline, embedded and external style sheets – Rule cascading – Inheritance – Backgrounds – Border Images – Colors – Shadows – Text – Transformations – Transitions – Animations.	9
II	Java Script: An introduction to JavaScript–JavaScript DOM Model-Date and Objects,- Regular Expressions- Exception Handling-Validation-Built-in objects-Event Handling- DHTML with JavaScript- JSON introduction – Syntax – Function Files – Http Request – SQL.	9
III	Servlets: Java Servlet Architecture- Servlet Life Cycle- Form GET and POST actions- Session Handling- Understanding Cookies- Installing and Configuring Apache Tomcat Web Server- DATABASE CONNECTIVITY: JDBC perspectives, JDBC program example - JSP: Understanding Java Server Pages-JSP Standard Tag Library (JSTL)-Creating HTML forms by embedding JSP code.	9
IV	An introduction to PHP: PHP- Using PHP- Variables- Program control-Built-in functions- Form Validation- Regular Expressions - File handling – Cookies - Connecting to Database. XML: Basic XML- Document Type Definition- XML Schema DOM and Presenting XML,	9

	XML Parsers and Validation, XSL and XSLT Transformation, News Feed (RSS and ATOM).	
V	AJAX: Ajax Client Server Architecture-XML Http Request Object-Call Back Methods; Web Services: Introduction- Java web services Basics – Creating, Publishing, Testing and Describing a Web services (WSDL)-Consuming a web service, Database Driven web service from an application –SOAP.	9
	TOTAL HOURS	**45**

TEXT/REFERENCE BOOKS:

T/R	BOOK TITLE/AUTHORS/PUBLICATION
T1	Deitel and Deitel and Nieto, —Internet and World Wide Web - How to Programl, Prentice Hall, 5th Edition, 2011.
T2	Stephen Wynkoop and John Burke —Running a Perfect Websitel, QUE, 2nd Edition,1999.
R1	Chris Bates, Web Programming – Building Intranet Applications, 3rd Edition, Wiley Publications, 2009.
R2	Jeffrey C and Jackson, —Web Technologies A Computer Science Perspectivel, Pearson Education, 2011.
R3	Gopalan N.P. and Akilandeswari J., —Web Technologyl, Prentice Hall of India, 2011.
R4	UttamK.Roy, —Web Technologiesl, Oxford University Press, 2011.

COURSE PRE-REQUISITES:

C.CODE	COURSE NAME	DESCRIPTION	SEM
C302	Computer Networks	Basic awareness of network	CS8591

COURSE OBJECTIVES:

1	To impart the basics of web page design
2	To understand important components of HTML5 documents and use HTML5 to create web pages
3	To learn to use JavaScript in WebPages to enhance the functionality and appearance of web pages
4	To know XML schema and transformation
5	To design dynamic web pages using PHP

COURSE OUTCOMES:

SNO	DESCRIPTION	Level in Bloom's Taxonomy
C310.1	Demonstrate simple website using HTML and CSS.	K2
C310.2	Build dynamic web pages with validation using Java Script objects and	K3

		apply different event handling mechanisms.	
C310.3	Illustrate server side programs using Servlet and JSP.		K2
C310.4	Demonstrate simple web pages in PHP and to represent data in XML format.		K2
C310.5	Illustrate AJAX and web services to develop interactive web applications.		K2
C310.6	Develop interactive web applications for real world problems.		K3

CORELATION BETWEEN COURSE OUTCOMES AND PROGRAMME OUTCOMES

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
C310.1	2	1	1	-	-	-	-	-	-	-	-	-
C310.2	3	2	2	1	-	-	-	-	-	-	-	-
C310.3	2	1	1	-	-	-	-	-	-	-	-	-
C310.4	2	1	1	-	-	-	-	-	-	-	-	-
C310.5	2	1	1	1	-	-	-	-	-	-	-	-
C310.6	3	2	2	1	-	-	-	-	-	-	-	-
C310	2	1	1	1	-	-	-	-	-	-	-	-

CORELATION BETWEEN COURSE OUTCOMES AND PROGRAMME SPECIFIC OUTCOMES

CO	PSO 1	PSO 2	PSO 3
C310.1	2	2	-
C310.2	2	2	-
C310.3	2	2	-
C310.4	2	2	-
C310.5	2	2	-
C310.6	2	2	-
C310	2	2	-

GAPS IN THE SYLLABUS - TO MEET INDUSTRY/PROFESSION REQUIREMENTS:

SNO	DESCRIPTION	Mapping to PO	PROPOSED ACTIONS
	NIL		

TOPICS BEYOND SYLLABUS/ADVANCED TOPICS/DESIGN:

Sl.No	Topic	Mapping to P O
1	WAMP procedure and working principles	PO2,PO3, PO4

WEB SOURCE REFERENCES:

1	www.w3schools.com/
2	www.w3.org/
3	www.htmldog.com / Tutorials/ HTML
4	www.validator.w3.org/
5	https://www.w3.org/TR/WD-DOM/introduction.html
6	https://alistapart.com/article/frameworks
7	httpd.apache.org/download.cgi

DELIVERY/INSTRUCTIONAL METHODOLOGIES:

✓ CHALK & TALK	✓ STUD. ASSIGNMENT	✓ WEB RESOURCES	✓ TUTORIAL
✓ LCD/SMART BOARDS	✓ STUD. SEMINARS		

DELIVERY METHODS USED FOR EACH COURSE OUT COME

SNO	DELIVERY METHODS
C310.1	CHALK & TALK, STUD. ASSIGNMENT, TUTORIAL
C310.2	CHALK & TALK, STUD. ASSIGNMENT, TUTORIAL
C310.3	CHALK & TALK , STUD.ASSIGNMENT, WEB RESOURCES
C310.4	CHALK & TALK, LCD/SMART BOARDS, WEB RESOURCES, TUTORIAL
C310.5	CHALK & TALK, STUD. ASSIGNMENT, LCD/SMART BOARDS, WEB RESOURCES
C310.6	CHALK & TALK, LCD/SMART BOARDS, STUD.SEMINARS

ASSESSMENT METHODOLOGIES-DIRECT.

✓ ASSIGNMENTS	✓ STUD. SEMINARS	✓ TESTS/MODEL EXAMS	✓ UNIV. EXAMINATION

ASSESSMENT METHODOLOGIES-INDIRECT.

STUDENT FEEDBACK ON FACULTY (ONCE)	

ASSESSMENT METHODOLOGIES USED FOR EACH COURSE OUT COME

SNO	ASSESSMENT METHODOLOGIES-DIRECT	ASSESSMENT METHODOLOGIES-INDIRECT
C310.1	ASSIGNMENTS, UNIV. EXAMINATION, STUD. SEMINARS, TESTS/MODEL EXAMS	STUDENT FEEDBACK ON FACULTY
C310.2	UNIV. EXAMINATION, TESTS/MODEL EXAMS,	STUDENT FEEDBACK ON FACULTY
C310.3	UNIV. EXAMINATION, TESTS/MODEL EXAMS, ASSIGNMENTS	STUDENT FEEDBACK ON FACULTY
C310.4	UNIV. EXAMINATION, TESTS/MODEL EXAMS	STUDENT FEEDBACK ON FACULTY
C310.5	ASSIGNMENTS, UNIV. EXAMINATION, TESTS/MODEL EXAMS	STUDENT FEEDBACK ON FACULTY
C310.6	UNIV. EXAMINATION, TESTS/MODEL EXAMS, STUD SEMINARS	STUDENT FEEDBACK ON FACULTY

Prepared by
(Course Coordinator)

Mr.J.Viswanath
Name and Signature

Approved by
(Programme Coordinator)

Mr.J.Viswanath
Name and Signature

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DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

COURSE INFORMATION SHEET

PROGRAMME: Computer Science & Engineering	**DEGREE:** B.E	
COURSE: ARTIFICIAL INTELLIGENCE	**SEMESTER: 6 CREDITS:** 3	
COURSE CODE: CS8691 / C311	**COURSE TYPE:** CORE	
COURSE AREA/STREAM : Aritificial Intelligence	**CONTACT HOURS:** 5+1 hours/Week.	
CORRESPONDING LAB COURSE CODE (IF ANY): NIL	**LAB COURSE NAME :** NIL	
COURSE COORDINATOR NAME : Mrs.C.Kalpana		

SYLLABUS:

MODULE	DETAILS	HOURS
I	Introduction–Definition - Future of Artificial Intelligence – Characteristics of Intelligent Agents–Typical Intelligent Agents – Problem Solving Approach to Typical AI problems.	9
II	Problem solving Methods - Search Strategies- Uninformed - Informed - Heuristics - Local Search Algorithms and Optimization Problems - Searching with Partial Observations - Constraint Satisfaction Problems – Constraint Propagation - Backtracking Search - Game Playing - Optimal Decisions in Games – Alpha - Beta Pruning - Stochastic Games	9
III	First Order Predicate Logic – Prolog Programming – Unification – Forward Chaining-Backward Chaining – Resolution – Knowledge Representation - Ontological Engineering-Categories and Objects – Events - Mental Events and Mental Objects - Reasoning Systems for Categories - Reasoning with Default Information	9
IV	Architecture for Intelligent Agents – Agent communication – Negotiation and Bargaining – Argumentation among Agents – Trust and Reputation in Multi-agent systems.	9
V	AI applications – Language Models – Information Retrieval- Information Extraction – Natural Language Processing - Machine Translation – Speech Recognition – Robot – Hardware – Perception – Planning – Moving	9
	TOTAL HOURS	**45**

TEXT/REFERENCE BOOKS:

T/R	BOOK TITLE/AUTHORS/PUBLICATION
T1	S. Russell and P. Norvig, "Artificial Intelligence: A Modern Approachl, Prentice Hall, Third Edition, 2009.
T2	I. Bratko, —Prolog: Programming for Artificial Intelligencel, Fourth edition, Addison-Wesley Educational Publishers Inc., 2011.
R1	M. Tim Jones, —Artificial Intelligence: A Systems Approach(Computer Science)l, Jones and Bartlett Publishers, Inc.; First Edition, 2008
R2	Nils J. Nilsson, —The Quest for Artificial Intelligencel, Cambridge University Press, 2009.
R3	William F. Clocksin and Christopher S. Mellish,l Programming in Prolog: Using the ISO Standardl, Fifth Edition, Springer, 2003.
R4	Gerhard Weiss, —Multi Agent Systemsl, Second Edition, MIT Press, 2013.
R5	David L. Poole and Alan K. Mackworth, —Artificial Intelligence: Foundations of Computational Agentsl, Cambridge University Press, 2010.

COURSE PRE-REQUISITES:

C.CODE	COURSE NAME	DESCRIPTION	SEM
C105	PROBLEM SOLVING AND PYTHON PROGRAMMING	Basics of Python Programming	1

COURSE OBJECTIVES:

1	To understand the various characteristics of Intelligent agents
2	To learn the different search strategies in AI
3	To learn to represent knowledge in solving AI problems
4	To understand the different ways of designing software agents
5	To know about the various applications of AI.

COURSE OUTCOMES:

SNO	DESCRIPTION	Level in Bloom's Taxonomy
C311.1	List the characteristics and types of intelligent agents	K2
C311.2	Interpret search algorithms for any AI problem	K2
C311.3	Illustrate a problem using first order and predicate logic	K2
C311.4	Understand the appropriate agent strategy to solve a given problem	K2
C311.5	Develop software agents to solve a problem	K2
C311.6	Demonstrate applications for NLP that use Artificial Intelligence	K2

2

CORELATION BETWEEN COURSE OUTCOMES AND PROGRAMME OUTCOMES

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
C311.1	2	1	1	-	-	-	-	-	-	-	-	-
C311.2	2	1	1	-	-	-	-	-	-	-	-	-
C311.3	2	1	1	-	-	-	-	-	-	-	-	-
C311.4	2	1	1	-	-	-	-	-	-	-	-	-
C311.5	2	1	1	-	-	-	-	-	-	-	-	-
C311.6	2	1	1	-	-	-	-	-	-	-	-	-
C311	2	1	1	-	-	-	-	-	-	-	-	-

CORELATION BETWEEN COURSE OUTCOMES AND PROGRAMME SPECIFIC OUTCOMES

CO	PSO 1	PSO 2	PSO 3
C311.1	2	-	-
C311.2	2	-	-
C311.3	2	-	-
C311.4	2	-	-
C311.5	2	-	-
C311.6	2	-	-
C311	2	-	-

GAPS IN THE SYLLABUS - TO MEET INDUSTRY/PROFESSION REQUIREMENTS:

SNO	DESCRIPTION	Mapping to PO	PROPOSED ACTIONS
1	Understanding of Probability theory	PO1, PO2, PO3	Class Seminars

TOPICS BEYOND SYLLABUS/ADVANCED TOPICS/DESIGN:

Sl.No	Topic	Mapping to P O
1	Fuzzy logic	PO1, PO2, PO3
2	Deep learning	PSO1

3

WEB SOURCE REFERENCES:

1	https://onlinecourses.nptel.ac.in/noc18_cs26/
2	https://www.upgrad.com/machine-learning-and-artificial-intelligence

DELIVERY/INSTRUCTIONAL METHODOLOGIES:

✓ CHALK & TALK	✓ STUD. ASSIGNMENT	✓ WEB RESOURCES	✓ TUTORIAL
✓ LCD/SMART BOARDS	✓ STUD. SEMINARS		

DELIVERY METHODS USED FOR EACH COURSE OUT COME

SNO	DELIVERY METHODS
C3().1	CHALK & TALK, STUD. ASSIGNMENT, TUTORIAL
C3().2	CHALK & TALK, STUD. ASSIGNMENT, TUTORIAL
C3().3	CHALK & TALK , STUD.ASSIGNMENT, WEB RESOURCES
C3().4	CHALK & TALK, LCD/SMART BOARDS, WEB RESOURCES, TUTORIAL
C3().5	CHALK & TALK, STUD. ASSIGNMENT, LCD/SMART BOARDS, WEB RESOURCES
C3().6	CHALK & TALK, LCD/SMART BOARDS, STUD.SEMINARS

ASSESSMENT METHODOLOGIES-DIRECT.

✓ ASSIGNMENTS	✓ STUD. SEMINARS	✓ TESTS/MODEL EXAMS	✓ UNIV. EXAMINATION

ASSESSMENT METHODOLOGIES-INDIRECT.

STUDENT FEEDBACK ON FACULTY (ONCE)	

ASSESSMENT METHODOLOGIES USED FOR EACH COURSE OUT COME

SNO	ASSESSMENT METHODOLOGIES-DIRECT	ASSESSMENT METHODOLOGIES-INDIRECT
C312.1	ASSIGNMENTS, UNIV. EXAMINATION, STUD. SEMINARS, TESTS/MODEL EXAMS	STUDENT FEEDBACK ON FACULTY
C312.2	UNIV. EXAMINATION, TESTS/MODEL EXAMS,	STUDENT FEEDBACK ON FACULTY
C312.3	UNIV. EXAMINATION, TESTS/MODEL EXAMS, ASSIGNMENTS	STUDENT FEEDBACK ON FACULTY
C312.4	UNIV. EXAMINATION, TESTS/MODEL EXAMS	STUDENT FEEDBACK ON FACULTY
C312.5	ASSIGNMENTS, UNIV. EXAMINATION, TESTS/MODEL EXAMS	STUDENT FEEDBACK ON FACULTY
C312.6	UNIV. EXAMINATION, TESTS/MODEL EXAMS, STUD SEMINARS	STUDENT FEEDBACK ON FACULTY

Prepared by
(Course Coordinator)

Mrs.C.Kalpana
Name and Signature

Approved by
(Programme Coordinator)

Mr.J.Viswanath
Name and Signature

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DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

COURSE INFORMATION SHEET

PROGRAMME: Computer Science & Engineering	**DEGREE:** B.E
COURSE: MOBILE COMPUTING	**SEMESTER:** 6 **CREDITS:** 3
COURSE CODE: CS8601 / C312	**COURSE TYPE:** CORE
COURSE AREA/STREAM : Mobile Computing	**CONTACT HOURS:** 5+1 hours/Week.
CORRESPONDING LAB COURSE CODE (IF ANY): CS8662	**LAB COURSE NAME :** Mobile Application And Development Laboratory
COURSE COORDINATOR NAME : Mrs.R.Ramya	

SYLLABUS:

MODULE	DETAILS	HOURS
I	Introduction to Mobile Computing – Applications of Mobile Computing- Generations of Mobile Communication Technologies- Multiplexing – Spread spectrum -MAC Protocols – SDMA- TDMA- FDMA- CDMA	9
II	Introduction to Cellular Systems - GSM – Services & Architecture – Protocols – Connection Establishment – Frequency Allocation – Routing – Mobility Management – Security – GPRS- UMTS – Architecture – Handover - Security	9
III	Mobile IP – DHCP – AdHoc– Proactive protocol-DSDV, Reactive Routing Protocols – DSR, AODV , Hybrid routing –ZRP, Multicast Routing- ODMRP, Vehicular Ad Hoc networks (VANET) –MANET Vs VANET – Security.	9
IV	Mobile TCP– WAP – Architecture – WDP – WTLS – WTP –WSP – WAE – WTA Architecture – WML	9
V	Mobile Device Operating Systems – Special Constraints & Requirements – Commercial Mobile Operating Systems – Software Development Kit: iOS, Android, BlackBerry, Windows Phone – MCommerce – Structure – Pros & Cons – Mobile Payment System – Security Issues	9
	TOTAL HOURS	45

1

TEXT/REFERENCE BOOKS:

T/R	BOOK TITLE/AUTHORS/PUBLICATION
T1	Jochen Schiller, —Mobile Communicationsl, PHI, Second Edition, 2003.
T2	Prasant Kumar Pattnaik, Rajib Mall, —Fundamentals of Mobile Computingl, PHI Learning Pvt.Ltd, New Delhi – 2012
R1	Dharma Prakash Agarval, Qing and An Zeng, "Introduction to Wireless and Mobile systems",Thomson Asia Pvt Ltd, 2005.
R2	Uwe Hansmann, Lothar Merk, Martin S. Nicklons and Thomas Stober, —Principles of Mobile Computingl, Springer, 2003.
R3	William.C.Y.Lee,—Mobile Cellular Telecommunications-Analog and Digital Systemsl, Second Edition,TataMcGraw Hill Edition ,2006.
R4	C.K.Toh, —AdHoc Mobile Wireless Networksl, First Edition, Pearson Education, 2002.

COURSE PRE-REQUISITES:

C.CODE	COURSE NAME	DESCRIPTION	SEM
C114	Programming in C	Concepts of Programming	II
C214	Operating System	Basic Concepts of Operating	IV
C302	Computer Networks	Knowledge of Networking	V

COURSE OBJECTIVES:

1	To understand the basic concepts of mobile computing.
2	To learn the basics of mobile telecommunication system .
3	To be familiar with the network layer protocols and Ad-Hoc networks.
4	To know the basis of transport and application layer protocols.
5	To gain knowledge about different mobile platforms and application development.

COURSE OUTCOMES:

SNO	DESCRIPTION	Level in Bloom's Taxonomy
C312.1	Understand the basic concepts of mobile computing	K2
C312.2	Understand the basics of mobile telecommunication systems	K2
C312.3	Illustrate the generations of telecommunication systems in wireless networks	K2
C312.4	Demonstrate the functionality of MAC, network layer and Identify a routing protocol for a given Ad hoc network	K2
C312.5	Understand the functionality of Transport and Application layers	K2
C312.6	Develop a mobile application using android/blackberry/ios/Windows SDK	K3

CORELATION BETWEEN COURSE OUTCOMES AND PROGRAMME OUTCOMES

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
C312.1	2	1	1	-	-	-	-	-	-	-	-	-
C312.2	2	1	1	-	-	-	-	-	-	-	-	-
C312.3	2	1	1	-	-	-	-	-	-	-	-	-
C312.4	2	1	1	-	-	-	-	-	-	-	-	-
C312.5	2	1	1	-	-	-	-	-	-	-	-	-
C312.6	3	2	2	-	-	-	-	-	-	-	-	-
C312	2	1	1	-	-	-	-	--	-	-	-	-

CORELATION BETWEEN COURSE OUTCOMES AND PROGRAMME SPECIFIC OUTCOMES

CO	PSO 1	PSO 2	PSO 3
C312.1	-	-	-
C312.2	-	-	-
C312.3	-	-	-
C312.4	-	-	-
C312.5	-	-	-
C312.6	-	-	-
C312	-	-	-

GAPS IN THE SYLLABUS - TO MEET INDUSTRY/PROFESSION REQUIREMENTS:

SNO	DESCRIPTION	Mapping to PO	PROPOSED ACTIONS
	NIL		

TOPICS BEYOND SYLLABUS/ADVANCED TOPICS/DESIGN:

Sl.No	Topic	Mapping to P O
1	Spread Spectrum	PO2, PO3
2	Mobile Pervasive Computing	PO1

3

WEB SOURCE REFERENCES:

1	en.wikipedia.org/wiki/
2	https://nptel.ac.in/courses/106/105/106105183/
3	ww.w3schools.com/
4	http://www.cs.ccsu.edu/~stan/classes/CS490/Slides/Networks4-Ch4-4.pdf 6
5	https://www.geeksforgeeks.org/basics-computer-networking/

DELIVERY/INSTRUCTIONAL METHODOLOGIES:

✓ CHALK & TALK	✓ STUD. ASSIGNMENT	✓ WEB RESOURCES	✓ TUTORIAL
✓ LCD/SMART BOARDS	✓ STUD. SEMINARS		

DELIVERY METHODS USED FOR EACH COURSE OUT COME

SNO	DELIVERY METHODS
C312.1	CHALK & TALK, STUD. ASSIGNMENT, TUTORIAL
C312.2	CHALK & TALK, STUD. ASSIGNMENT, TUTORIAL
C312.3	CHALK & TALK , STUD.ASSIGNMENT, WEB RESOURCES
C312.4	CHALK & TALK, LCD/SMART BOARDS, WEB RESOURCES, TUTORIAL
C312.5	CHALK & TALK, STUD. ASSIGNMENT, LCD/SMART BOARDS, WEB RESOURCES
C312.6	CHALK & TALK, LCD/SMART BOARDS, STUD.SEMINARS

ASSESSMENT METHODOLOGIES-DIRECT.

✓ ASSIGNMENTS	✓ STUD. SEMINARS	✓ TESTS/MODEL EXAMS	✓ UNIV. EXAMINATION

ASSESSMENT METHODOLOGIES-INDIRECT.

STUDENT FEEDBACK ON FACULTY (ONCE)	

ASSESSMENT METHODOLOGIES USED FOR EACH COURSE OUT COME

SNO	ASSESSMENT METHODOLOGIES-DIRECT	ASSESSMENT METHODOLOGIES-INDIRECT
C3 /2.1	ASSIGNMENTS, UNIV. EXAMINATION, STUD. SEMINARS, TESTS/MODEL EXAMS	STUDENT FEEDBACK ON FACULTY
C3 /2.2	UNIV. EXAMINATION, TESTS/MODEL EXAMS,	STUDENT FEEDBACK ON FACULTY
C3 /2.3	UNIV. EXAMINATION, TESTS/MODEL EXAMS, ASSIGNMENTS	STUDENT FEEDBACK ON FACULTY
C3 /2.4	UNIV. EXAMINATION, TESTS/MODEL EXAMS	STUDENT FEEDBACK ON FACULTY
C3 /2.5	ASSIGNMENTS, UNIV. EXAMINATION, TESTS/MODEL EXAMS	STUDENT FEEDBACK ON FACULTY
C3 /2.6	UNIV. EXAMINATION, TESTS/MODEL EXAMS, STUD SEMINARS	STUDENT FEEDBACK ON FACULTY

Prepared by
(Course Coordinator)

Mrs.R.Ramya
Name and Signature

Approved by
(Programme Coordinator)

Mr.J.Viswanath
Name and Signature

5

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DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

COURSE INFORMATION SHEET

PROGRAMME: Computer Science & Engineering		**DEGREE:** B.E	
COURSE: COMPILER DESIGN		**SEMESTER: 6 CREDITS: 4**	
COURSE CODE: CS8602 / C313		**COURSE TYPE:** CORE	
COURSE AREA/STREAM : Software Design		**CONTACT HOURS:** 5+1 hours/Week.	
CORRESPONDING LAB COURSE CODE (IF ANY): NIL		**LAB COURSE NAME : NIL**	
COURSE COORDINATOR NAME : Mrs.R.Sugashini			

SYLLABUS:

MODULE	DETAILS	HOURS
I	**UNIT I INTRODUCTION TO COMPILERS 9** Structure of a compiler – Lexical Analysis – Role of Lexical Analyzer – Input Buffering – Specification of Tokens – Recognition of Tokens – Lex – Finite Automata – Regular Expressions to Automata – Minimizing DFA.	9
II	**UNIT II SYNTAX ANALYSIS** Role of Parser – Grammars – Error Handling – Context-free grammars – Writing a grammar – Top Down Parsing - General Strategies Recursive Descent Parser Predictive Parser-LL(1) Parser-Shift Reduce Parser-LR Parser-LR (0)Item Construction of SLR Parsing Table - Introduction to LALR Parser - Error Handling and Recovery in Syntax Analyzer-YACC.	12
III	**UNIT III INTERMEDIATE CODE GENERATION** Syntax Directed Definitions, Evaluation Orders for Syntax Directed Definitions, Intermediate Languages: Syntax Tree, Three Address Code, Types and Declarations, Translation of Expressions, Type Checking.	8
IV	**UNIT IV RUN-TIME ENVIRONMENT AND CODE GENERATION** Storage Organization, Stack Allocation Space, Access to Non-local Data on the Stack, Heap Management - Issues in Code Generation - Design of a simple Code Generator.	8

	UNIT V CODE OPTIMIZATION	
V	Principal Sources of Optimization – Peep-hole optimization - DAG-Optimization of Basic BlocksGlobal Data Flow Analysis - Efficient Data Flow Algorithm.	8
	TOTAL HOURS	**45**

TEXT/REFERENCE BOOKS:

T/R	BOOK TITLE/AUTHORS/PUBLICATION
T1	Alfred V. Aho, Monica S. Lam, Ravi Sethi, Jeffrey D. Ullman, Compilers: Principles, Techniques and Toolsl, Second Edition, Pearson Education, 2009.
R1	Randy Allen, Ken Kennedy, Optimizing Compilers for Modern Architectures: A Dependence based Approach, Morgan Kaufmann Publishers, 2002.
R2	Steven S. Muchnick, Advanced Compiler Design and Implementationl, Morgan Kaufmann Publishers - Elsevier Science, India, Indian Reprint 2003.
R3	Keith D Cooper and Linda Torczon, Engineering a Compilerl, Morgan Kaufmann Publishers Elsevier Science, 2004.
R4	V. Raghavan, Principles of Compiler Designl, Tata McGraw Hill Education Publishers, 2010.
R5	Allen I. Holub, Compiler Design in Cl, Prentice-Hall Software Series, 1993.

COURSE PRE-REQUISITES:

C.CODE	COURSE NAME	DESCRIPTION	SEM
C114	C Programming	C Programming Language	II
C304	Theory of Computation	Computational Models	V

COURSE OBJECTIVES:

1	To learn the various phases of compiler.
2	To learn the various parsing techniques.
3	To understand intermediate code generation and run-time environment.
4	To learn to implement front-end of the compiler
5	To learn to implement code generator.

COURSE OUTCOMES:

SNO	DESCRIPTION	Level in Bloom's Taxonomy
C313.1	Illustrate a lexical analyzer for a sample language.	K2
C313.2	Understand different parsing algorithms to develop the parsers for a given grammar.	K2

2

C313.3	Understand syntax-directed translation and run-time environment.	K2
C313.4	Understand intermediate code generation and run-time environment	K2
C313.5	Apply code optimization techniques for programming construct	K3
C313.6	Develop a scanner and a parser using LEX and YACC tools	K3

CORELATION BETWEEN COURSE OUTCOMES AND PROGRAMME OUTCOMES

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
C313.1	2	1	1	-	-	-	-	-	-	-	-	-
C313.2	2	1	1	-	-	-	-	-	-	-	-	-
C313.3	2	1	1	-	-	-	-	-	-	-	-	-
C313.4	2	1	1	-	-	-	-	-	-	-	-	-
C313.5	3	2	2	-	-	-	-	-	-	-	-	-
C313.6	3	2	2	-	-	-	-	-	-	-	-	-
C313.1	2	1	1	-	-	-	-	-	-	-	-	-
C313	2	1	1	-	-	-	-	-	-	-	-	-

CORELATION BETWEEN COURSE OUTCOMES AND PROGRAMME SPECIFIC OUTCOMES

CO	PSO 1	PSO 2	PSO 3
C313.1	2	-	-
C313.2	2	-	-
C313.3	2	-	-
C313.4	2	-	-
C313.5	2	-	-
C313.6	2	-	-
C313	2	-	-

GAPS IN THE SYLLABUS - TO MEET INDUSTRY/PROFESSION REQUIREMENTS:

SNO	DESCRIPTION	Mapping to PO	PROPOSED ACTIONS
1	Scanner Generator- Lex	PO2	Study materials distributed
2	Parser Generator- YACC	PO2, PO3	Study materials distributed

3

TOPICS BEYOND SYLLABUS/ADVANCED TOPICS/DESIGN:

Sl.No	Topic	Mapping to P O
1	ANTLR	-
2	JAVACC	-
3	Machine Independent Optimizations	-
4	Interproceduaral Analysis	-

WEB SOURCE REFERENCES:

1	http://www.cse.iitd.ernet.in%2F~sak%2Fcourses%2Fcdp%2Fslides.pdf&ei=xl4xUsWwI8n_rQe 24YDoAQ&usg=AFQjCNFeZnxu6BwhgXtl0FMEDQFq9FECzw&bvm=bv.52109249,d.bmk
2	http://nptel.iitm.ac.in/courses/Webcourse-contents/IIT-KANPUR/compiler-desing/
3	http://www.diku.dk/~torbenm/Basics/basics_lulu2.pdf
4	http://www.antlr.org/wiki/display/ANTLR3/Tutorials
5	http://javacc.java.net/
6	http://www.engr.mun.ca/~theo/JavaCC-Tutorial/javacc-tutorial.pdf

DELIVERY/INSTRUCTIONAL METHODOLOGIES:

✓ CHALK & TALK	✓ STUD. ASSIGNMENT	✓ WEB RESOURCES	✓ TUTORIAL
✓ LCD/SMART BOARDS	✓ STUD. SEMINARS		

DELIVERY METHODS USED FOR EACH COURSE OUT COME

SNO	DELIVERY METHODS
C313.1	CHALK & TALK, STUD. ASSIGNMENT, TUTORIAL
C313.2	CHALK & TALK, STUD. ASSIGNMENT, TUTORIAL
C313.3	CHALK & TALK , STUD.ASSIGNMENT, WEB RESOURCES
C313.4	CHALK & TALK, LCD/SMART BOARDS, WEB RESOURCES, TUTORIAL
C313.5	CHALK & TALK, STUD. ASSIGNMENT, LCD/SMART BOARDS, WEB RESOURCES
C313.6	CHALK & TALK, LCD/SMART BOARDS, STUD.SEMINARS

ASSESSMENT METHODOLOGIES-DIRECT.

✓ ASSIGNMENTS	✓ STUD. SEMINARS	✓ TESTS/MODEL EXAMS	✓ UNIV. EXAMINATION

ASSESSMENT METHODOLOGIES-INDIRECT.

STUDENT FEEDBACK ON FACULTY (ONCE)	

ASSESSMENT METHODOLOGIES USED FOR EACH COURSE OUT COME

SNO	ASSESSMENT METHODOLOGIES-DIRECT	ASSESSMENT METHODOLOGIES-INDIRECT
C313.1	ASSIGNMENTS, UNIV. EXAMINATION, STUD. SEMINARS, TESTS/MODEL EXAMS	STUDENT FEEDBACK ON FACULTY
C313.2	UNIV. EXAMINATION, TESTS/MODEL EXAMS,	STUDENT FEEDBACK ON FACULTY
C313.3	UNIV. EXAMINATION, TESTS/MODEL EXAMS, ASSIGNMENTS	STUDENT FEEDBACK ON FACULTY
C313.4	UNIV. EXAMINATION, TESTS/MODEL EXAMS	STUDENT FEEDBACK ON FACULTY
C313.5	ASSIGNMENTS, UNIV. EXAMINATION, TESTS/MODEL EXAMS	STUDENT FEEDBACK ON FACULTY
C313.6	UNIV. EXAMINATION, TESTS/MODEL EXAMS, STUD SEMINARS	STUDENT FEEDBACK ON FACULTY

Prepared by
(Course Coordinator)

Mrs.R.Sugashini
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Approved by
(Programme Coordinator)

Mr.J.Viswanath
Name and Signature

5

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DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

COURSE INFORMATION SHEET

PROGRAMME:Computer Science & Engineering	DEGREE: B.E
COURSE: DISTRIBUTED SYSTEMS	SEMESTER: 6 CREDITS: 3
COURSE CODE: CS8603 / C314	COURSE TYPE: CORE
COURSE AREA/STREAM : Sysem Design	CONTACT HOURS: 5+1 hours/Week.
CORRESPONDING LAB COURSE CODE (IF ANY): NIL	LAB COURSE NAME : NIL
COURSE COORDINATOR NAME: Mrs.S.Sathiya	

SYLLABUS:

MODULE	DETAILS	HOURS
I	Introduction: Definition –Relation to computer system components – Motivation –Relation to parallel systems – Message-passing systems versus shared memory systems –Primitives for distributed communication –Synchronous versus asynchronous executions –Design issues and challenges. A model of distributed computations: A distributed program – A model of distributed executions –Models of communication networks – Global state – Cuts –Past and future cones of an event –Models of process communications. Logical Time: A framework for a system of logical clocks –Scalar time –Vector time – Physical clock synchronization: NTP.	9
II	Message ordering and group communication: Message ordering paradigms –Asynchronous execution with synchronous communication –Synchronous program order on an asynchronous system –Group communication – Causal order (CO) - Total order. Global state and snapshot recording algorithms: Introduction –System model and definitions –Snapshot algorithms for FIFO channels	9
III	Distributed mutual exclusion algorithms: Introduction – Preliminaries – Lamport's algorithm – Ricart-Agrawala algorithm – Maekawa's algorithm – Suzuki–Kasami's broadcast algorithm. Deadlock detection in distributed systems: Introduction – System model – Preliminaries – Models of deadlocks – Knapp's classification – Algorithms for the single resource model, the AND model and the OR model.	9
IV	Checkpointing and rollback recovery: Introduction – Background and definitions – Issues in failure recovery – Checkpoint-based recovery – Log-based rollback recovery – Coordinated checkpointing algorithm –	9

	Algorithm for asynchronous checkpointing and recovery. Consensus and agreement algorithms: Problem definition – Overview of results – Agreement in a failure –free system – Agreement in synchronous systems with failures.	
V	Peer-to-peer computing and overlay graphs: Introduction – Data indexing and overlays – Chord – Content addressable networks – Tapestry. Distributed shared memory: Abstraction and advantages – Memory consistency models –Shared memory Mutual Exclusion.	9
	TOTAL HOURS	**45**

TEXT/REFERENCE BOOKS:

T/R	BOOK TITLE/AUTHORS/PUBLICATION
T1	Kshemkalyani, Ajay D., and Mukesh Singhal. Distributed computing: principles, algorithms, and systems. Cambridge University Press, 2011.
T2	George Coulouris, Jean Dollimore and Tim Kindberg, ―Distributed Systems Concepts and Design‖, Fifth Edition, Pearson Education, 2012.
R1	Pradeep K Sinha, "Distributed Operating Systems: Concepts and Design", Prentice Hall of India, 2007.
R2	Mukesh Singhal and Niranjan G. Shivaratri. Advanced concepts in operating systems. McGraw-Hill, Inc., 1994.
R3	Tanenbaum A.S., Van Steen M., ―Distributed Systems: Principles and Paradigms‖, Pearson Education, 2007.
R4	Liu M.L., ―Distributed Computing, Principles and Applications‖, Pearson Education, 2004.
R5	Nancy A Lynch, ―Distributed Algorithms‖, Morgan Kaufman Publishers, USA, 2003.

COURSE PRE-REQUISITES:

C.CODE	COURSE NAME	DESCRIPTION	SEM
C212	DATABASE MANAGEMENT SYSTEMS	Study of distributed database management systems	IV
C214	OPERATING SYSTEMS	Study of process migration, threads, mutual exclusion	IV
C302	COMPUTER NETWORKS	Study of different distributed computing models, communication techniques used in distributed systems.	V

COURSE OBJECTIVES:

1	To understand the foundations of distributed systems.
2	To learn issues related to clock Synchronization and the need for global state in distributed systems.
3	To learn distributed mutual exclusion and deadlock detection algorithms.
4	To understand the significance of agreement, fault tolerance and recovery protocols in Distributed Systems.

5	To learn the characteristics of peer-to-peer and distributed shared memory systems.

COURSE OUTCOMES:

SNO	DESCRIPTION	Level in Bloom's Taxonomy
C314.1	Elucidate the foundations and issues of distributed systems	K2
C314.2	Understand the various synchronization issues and global state for distributed systems.	K2
C314.3	Comprehend the Mutual Exclusion and Deadlock detection algorithms in distributed systems	K2
C314.4	Show the use of agreement protocols and fault tolerance mechanisms in distributed systems.	K2
C314.5	Relate the features of peer-to-peer and distributed shared memory systems	K2
C314.6	Interpret the real-time distributed system applications	K2

CORELATION BETWEEN COURSE OUTCOMES AND PROGRAMME OUTCOMES

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
C314.1	2	1	1	-	-	-	-	-	-	-	-	-
C314.2	2	1	1	-	-	-	-	-	-	-	-	-
C314.3	2	1	1	-	-	-	-	-	-	-	-	-
C314.4	2	1	1	-	-	-	-	-	-	-	-	-
C314.5	2	1	2	-	-	-	-	-	-	-	-	-
C314.6	2	1	1	-	-	-	-	-	-	-	-	-
C314	2	1	1	-	-	-	-	-	-	-	-	-

CORELATION BETWEEN COURSE OUTCOMES AND PROGRAMME SPECIFIC OUTCOMES

CO	PSO 1	PSO 2	PSO 3
C314.1	-	-	-
C314.2	-	-	-
C314.3	-	-	-
C314.4	-	-	-
C314.5	-	-	-
C314.6	-	-	-
C314	-	-	-

3

GAPS IN THE SYLLABUS - TO MEET INDUSTRY/PROFESSION REQUIREMENTS:

SNO	DESCRIPTION	Mapping to PO	PROPOSED ACTIONS
1	Case study: Google file System and WWW.	PO2	-

TOPICS BEYOND SYLLABUS/ADVANCED TOPICS/DESIGN:

Sl.No	Topic	Mapping to P O
	NIL	

WEB SOURCE REFERENCES:

1	https://www.distributed-systems.net/index.php/books/distributed-systems-3rd-edition-2017/
2	http://billpg.com/bacchae-co-uk/docs/dist.html
3	https://www.coursera.org/lecture/cloud-computing/2-2-what-is-a-distributed-system-nvMXE

DELIVERY/INSTRUCTIONAL METHODOLOGIES:

✓ CHALK & TALK	✓ STUD. ASSIGNMENT	✓ WEB RESOURCES	✓ TUTORIAL
✓ LCD/SMART BOARDS	✓ STUD. SEMINARS		

DELIVERY METHODS USED FOR EACH COURSE OUT COME

SNO	DELIVERY METHODS
C314.1	CHALK & TALK, STUD. ASSIGNMENT, TUTORIAL
C314.2	CHALK & TALK, STUD. ASSIGNMENT, TUTORIAL
C314.3	CHALK & TALK , STUD.ASSIGNMENT, WEB RESOURCES
C314.4	CHALK & TALK, LCD/SMART BOARDS, WEB RESOURCES, TUTORIAL
C314.5	CHALK & TALK, STUD. ASSIGNMENT, LCD/SMART BOARDS, WEB RESOURCES
C314.6	CHALK & TALK, LCD/SMART BOARDS, STUD.SEMINARS

ASSESSMENT METHODOLOGIES-DIRECT.

✓ ASSIGNMENTS	✓ STUD. SEMINA RS	✓ TESTS/MODEL EXAMS	✓ UNIV. EXAMINAT ION

ASSESSMENT METHODOLOGIES-INDIRECT.

STUDENT FEEDBACK ON FACULTY (ONCE)	

ASSESSMENT METHODOLOGIES USED FOR EACH COURSE OUT COME

SNO	ASSESSMENT METHODOLOGIES-DIRECT	ASSESSMENT METHODOLOGIES-INDIRECT
C314.1	ASSIGNMENTS, UNIV. EXAMINATION, STUD. SEMINARS, TESTS/MODEL EXAMS	STUDENT FEEDBACK ON FACULTY
C314.2	UNIV. EXAMINATION, TESTS/MODEL EXAMS,	STUDENT FEEDBACK ON FACULTY
C314.3	UNIV. EXAMINATION, TESTS/MODEL EXAMS, ASSIGNMENTS	STUDENT FEEDBACK ON FACULTY
C314.4	UNIV. EXAMINATION, TESTS/MODEL EXAMS	STUDENT FEEDBACK ON FACULTY
C314.5	ASSIGNMENTS, UNIV. EXAMINATION, TESTS/MODEL EXAMS	STUDENT FEEDBACK ON FACULTY
C314.6	UNIV. EXAMINATION, TESTS/MODEL EXAMS, STUD SEMINARS	STUDENT FEEDBACK ON FACULTY

Prepared by
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S. Sathiya

Mrs.S.Sathiya
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Approved by
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Mr.J.Viswanath
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5

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DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

COURSE INFORMATION SHEET

PROGRAMME: Computer Science & Engineering	**DEGREE:** B.E	
COURSE: SOFTWARE TESTING	**SEMESTER:** 6 CREDITS:3	
COURSE CODE: IT8076 / C315	**COURSE TYPE:** ELECTIVE	
COURSE AREA/STREAM : Software Quality Assurance	**CONTACT HOURS:** 5+1 hours/Week.	
CORRESPONDING LAB COURSE CODE (IF ANY): NIL	**LAB COURSE NAME** : NIL	
COURSE COORDINATOR NAME : Mrs.G.Sashikala		

SYLLABUS:

MODULE	DETAILS	HOURS
I	Testing as an Engineering Activity – Testing as a Process – Testing Maturity Model- Testing axioms – Basic definitions – Software Testing Principles – The Tester's Role in a Software Development Organization – Origins of Defects – Cost of defects – Defect Classes – The Defect Repository and Test Design –Defect Examples- Developer/Tester Support of Developing a Defect Repository.	9
II	Test case Design Strategies – Using Black Box Approach to Test Case Design – Boundary Value Analysis – Equivalence Class Partitioning – State based testing – Cause-effect graphing – Compatibility testing – user documentation testing – domain testing - Random Testing – Requirements based testing – Using White Box Approach to Test design – Test Adequacy Criteria – static testing vs. structural testing – code functional testing – Coverage and Control Flow Graphs – Covering Code Logic – Paths – code complexity testing – Additional White box testing approaches- Evaluating Test Adequacy Criteria.	9
III	The need for Levels of Testing – Unit Test – Unit Test Planning – Designing the Unit Tests – The Test Harness – Running the Unit tests and Recording results – Integration tests – Designing Integration Tests – Integration Test Planning – Scenario testing – Defect bash elimination System Testing – Acceptance testing – Performance testing – Regression Testing – Internationalization testing – Ad-hoc testing – Alpha, Beta Tests – Testing OO systems – Usability and Accessibility testing – Configuration testing –Compatibility testing – Testing the documentation	9

1

IV	People and organizational issues in testing – Organization structures for testing teams – testing services – Test Planning – Test Plan Components – Test Plan Attachments – Locating Test Items – test management – test process – Reporting Test Results – Introducing the test specialist – Skills needed by a test specialist – Building a Testing Group- The Structure of Testing Group- .The Technical Training Program.	9	
V	Software test automation – skills needed for automation – scope of automation – design and architecture for automation – requirements for a test tool – challenges in automation – Test metrics and measurements – project, progress and productivity metrics.	9	
	TOTAL HOURS	**45**	

TEXT/REFERENCE BOOKS:

T/R	BOOK TITLE/AUTHORS/PUBLICATION
T1	Srinivasan Desikan and Gopalaswamy Ramesh, —Software Testing – Principles and Practicesl, Pearson Education, 2006.
T2	Ron Patton, —Software Testingl, Second Edition, Sams Publishing, Pearson Education, 2007. AU Library.com
R1	Ilene Burnstein, —Practical Software Testingl, Springer International Edition, 2003.
R2	Edward Kit,l Software Testing in the Real World – Improving the Processl, Pearson Education, 1995.
R3	Boris Beizer,l Software Testing Techniquesl – 2nd Edition, Van Nostrand Reinhold, New York, 1990
R4	Aditya P. Mathur, —Foundations of Software Testing _ Fundamental Algorithms and Techniquesl, Dorling Kindersley (India) Pvt. Ltd., Pearson Education, 2008.

COURSE PRE-REQUISITES:

C.CODE	COURSE NAME	DESCRIPTION	SEM
C215	Software Engineering	Basics of Software Engieering concepts	IV

COURSE OBJECTIVES:

1	To learn the criteria for test cases.
2	To learn the design of test cases.
3	To understand test management and test automation techniques.
4	To apply test metrics and measurements.

COURSE OUTCOMES:

SNO	DESCRIPTION	Level in Bloom's Taxonomy
C315.1	Demonstrate knowledge of the fundamentals of software testing and competence in using software designed to assist in the software testing life cycle for given portions of the testing cycle.	K2

C315.2	Evaluate the limitations of a given testing process.	K3
C315.3	Analyze the design of test cases for different testing techniques.	K3
C315.4	Create test strategies and plans, design test cases, prioritize and execute them.	K6
C315.5	Apply a wide variety of software testing activities in an effective and efficient manner.	K3
C315.6	Understand the significance of software testing in web and Object orient techniques.	K2

CORELATION BETWEEN COURSE OUTCOMES AND PROGRAMME OUTCOMES

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
C315.1	2	1	1	-	-	-	-	-	-	-	-	-
C315.2	3	2	2	1	-	-	-	-	-	-	-	-
C315.3	2	1	1	-	-	-	-	-	-	-	-	-
C315.4	2	1	1	1	-	-	-	-	-	-	-	-
C315.5	2	1	1	-	-	-	-	-	-	-	-	-
C315.6	2	1	1	1	-	-	-	-	-	-	-	-
C315	2	1	1	1	-	-	-	-	-	-	-	-

CORELATION BETWEEN COURSE OUTCOMES AND PROGRAMME SPECIFIC OUTCOMES

CO	PSO 1	PSO 2	PSO 3
C315.1	2	-	-
C315.2	2	-	-
C315.3	2	-	-
C315.4	2	-	-
C315.5	2	-	-
C315.6	2	-	-
C315	2	-	-

GAPS IN THE SYLLABUS - TO MEET INDUSTRY/PROFESSION REQUIREMENTS:

SNO	DESCRIPTION	Mapping to PO	PROPOSED ACTIONS
	NIL		

TOPICS BEYOND SYLLABUS/ADVANCED TOPICS/DESIGN:

Sl.No	Topic	Mapping to P O
NIL		

DELIVERY/INSTRUCTIONAL METHODOLOGIES:

✓ CHALK & TALK	✓ STUD. ASSIGNMENT	✓ WEB RESOURCES	✓ TUTORIAL
✓ LCD/SMART BOARDS	✓ STUD. SEMINARS		

DELIVERY METHODS USED FOR EACH COURSE OUT COME

SNO	DELIVERY METHODS
C315.1	CHALK & TALK, STUD. ASSIGNMENT, TUTORIAL
C315.2	CHALK & TALK, STUD. ASSIGNMENT, TUTORIAL
C315.3	CHALK & TALK , STUD.ASSIGNMENT, WEB RESOURCES
C315.4	CHALK & TALK, LCD/SMART BOARDS, WEB RESOURCES, TUTORIAL
C315.5	CHALK & TALK, STUD. ASSIGNMENT, LCD/SMART BOARDS, WEB RESOURCES
C315.6	CHALK & TALK, LCD/SMART BOARDS, STUD.SEMINARS

ASSESSMENT METHODOLOGIES-DIRECT.

✓ ASSIGNMENTS	✓ STUD. SEMINARS	✓ TESTS/MODEL EXAMS	✓ UNIV. EXAMINATION

ASSESSMENT METHODOLOGIES-INDIRECT.

STUDENT FEEDBACK ON FACULTY (ONCE)	

4

ASSESSMENT METHODOLOGIES USED FOR EACH COURSE OUT COME

SNO	ASSESSMENT METHODOLOGIES-DIRECT	ASSESSMENT METHODOLOGIES-INDIRECT
C315.1	ASSIGNMENTS, UNIV. EXAMINATION, STUD. SEMINARS, TESTS/MODEL EXAMS	STUDENT FEEDBACK ON FACULTY
C315.2	UNIV. EXAMINATION, TESTS/MODEL EXAMS,	STUDENT FEEDBACK ON FACULTY
C315.3	UNIV. EXAMINATION, TESTS/MODEL EXAMS, ASSIGNMENTS	STUDENT FEEDBACK ON FACULTY
C315.4	UNIV. EXAMINATION, TESTS/MODEL EXAMS	STUDENT FEEDBACK ON FACULTY
C315.5	ASSIGNMENTS, UNIV. EXAMINATION, TESTS/MODEL EXAMS	STUDENT FEEDBACK ON FACULTY
C315.6	UNIV. EXAMINATION, TESTS/MODEL EXAMS, STUD SEMINARS	STUDENT FEEDBACK ON FACULTY

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