J.B. INSTITUTE OF ENGINEERING & TECHNOLOGY

(AUTONOMOUS)

http://www.jbiet.edu.in

| ACADEMIC YEAR | 2015-2016 |

FACULTY DETAILS:

Name of the Faculty:: **R.Navya**
Designation: **Asst.Prof**
Department:: **INFORMATION TECHNOLOGY**

COURSE DETAILS

Name Of The Programme:: **B.Tech**   Batch:: **2012**

Designation:: **Asst.Prof**
Year **IV YEAR**   Semester **I SEM**
Department:: **IT**
Title of The Subject **STM**   Subject Code **6757047**
No of Students 84

		2015-16
	COURSE PLAN	
		Regulation: R12

FACULTY DETAILS:

Name of the Faculty:: **R.Navya**
Designation: **Asst.Prof**
Department:: **INFORMATION TECHNOLOGY**

1. TARGET

    a) Percentage Pass   >**95%**

    b) Percentage I class   **>90%**

2. COURSE PLAN

(Please write how you intend to cover the contents: i.e., coverage of Units by lectures, guest lectures, design exercises, solving numerical problems, demonstration of models, model preparation, or by assignments, etc.)

3. METHOD OF EVALUATION

    3.1.   Continuous Assessment Examinations (CAE 1, CAE 2)

    3.2. Assignments / Seminars

    3.3. Mini Projects

    3.4. ☐ Quiz

    3.5. ☐ Term End Examination

    3.6. ☐ Others

4.   List out any new topic(s) or any innovation you would like to introduce in teaching the subject in this Semester.

Signature of HOD   Signature of Faculty
Date: Date:

FACULTY DETAILS:

Name of the Faculty:: **R.Navya**

Designation: **Asst.Prof**

Department:: **INFORMATION TECHNOLOGY**

Guidelines for Preparing the Course:

Course Description:

Software testing is an integral and important activity in every software development environment. Software seems to have has permeated almost every equipment that we use in our daily lives. Companies that produce embedded systems for use in health care, transportation, and other critical segments of our society have embraced model based software testing by integrating them into their development environments

Course Objectives:

This course is designed to enable a clear understanding and knowledge of the foundations, techniques, and tools in the area of software testing and its practice in the industry. The course will prepare students to be leaders in software testing. Whether you are a developer or a tester, you must test software. This course is a unique opportunity to learn strengths and weaknesses of a variety of software testing techniques

Learning Outcomes:

Where will this subject help?

(a) Test process and continuous quality improvement

(b) Test generation from requirements

(c) Modeling techniques: UML: FSM and State charts, Combinatorial design; and others.

(d) Test generation from models.

(e) Test adequacy assessment.

(f) Industrial applications

	COURSE OBJECTIVES	2015-16
		Regulation: R12

FACULTY DETAILS:

Name of the Faculty:: **R.Navya**
Designation: **Asst.Prof**
Department:: **INFORMATION TECHNOLOGY**

On completion of this Subject / Course the student shall be able to:

S.No.	Objectives	Outcomes
1.	This course is designed to enable a clear understanding and knowledge of the foundations, techniques, and tools in the area of software testing and its practice in the industry. The course will prepare students to be leaders in software testing. Whether you are a developer or a tester, you must test software. This course is a unique opportunity to learn strengths and weaknesses of a variety of software testing techniques. OB1: Test process and continuous quality improvement OB2: Test generation from requirements OB3: Clear understanding and knowledge of the foundations, techniques, and tools in the area of software testing and its practice in the industry. OB4: Test generation from models. OB5: Test adequacy assessment. OB6: Industrial applications	

Signature of Faculty
Date:

Note: For each of the OBJECTIVE indicate the appropriate OUTCOMES to be achieved.
Kindly refer Page 16, to know the illustrative verbs that can be used to state the objectives.

FACULTY DETAILS:

Name of the Faculty:: **R.Navya**
Designation: **Asst.Prof**
Department:: **INFORMATION TECHNOLOGY**

The expected outcomes of the Course / Subject are:

S.No.	General Categories of Outcomes	Specific Outcomes of the Course
A.	An ability to apply knowledge of mathematics, science, and engineering	
B.	An ability to design and conduct experiments, as well as to analyze and interpret data	
C.	An ability to design a system, component, or process to meet desired needs within realistic Constraints such as economic, environmental, social, political, ethical, health and safety, Manufacturability and sustainability	
D.	An ability to function on multi-disciplinary teams	
E.	An ability to identify, formulate, and solve engineering problems	
F.	An understanding of professional and ethical responsibility	
G.	An ability to communicate effectively	
H.	The broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context	
I.	A recognition of the need for, and an ability to engage in life-long learning	
J.	A knowledge of contemporary issues	
K.	An ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.	

Objectives – Outcome Relationship Matrix (Indicate the relationships by ☒ mark)**.**

Objectives \ Outcomes	A	B	C	D	E	F	G	H	I	J	K
1.	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
2.	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
3.	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
4.	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
5.	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
6.	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
7.	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
8.	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
9.	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
10.	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

	COURSE SCHEDULE	2015-16
		Regulation: R 12

FACULTY DETAILS:

Name of the Faculty:: **R.Navya**
Designation: **Asst.Prof**
Department:: **INFORMATION TECHNOLOGY**
The Schedule for the whole Course / Subject is:: **STM**

S. No.	Description	Duration (Date)		Total No. of Periods
		From	To	
1.	**Introduction:** Purpose of testing, Dichotomies, model for testing, consequences of bugs, taxonomy of Bugs	2/07/15	11/07/15	07
2.	**Flow Graphs and Path Testing:** Basics concepts of path testing, predicates, path predicates and achievable paths, path sensitizing, path instrumentation, application of path testing.	12/07/15	29/07/15	09
3.	**Transaction Flow Testing:** Transaction flows, transaction flow testing Techniques. **Dataflow Testing**:-Basics of dataflow testing, strategies in dataflow testing, application of dataflow testing.	30/07/15	19/08/15	10
4.	**Domain Testing**:-domains and paths, Nice & ugly domains, domain testing, domains and interfaces testing, domain and interface testing, domains and testability.	20/08/15	10/09/15	09
5.	**Paths, Path Products and Regular Expressions:** Path products & path expression, reduction procedure, applications, regular expressions & flow anomaly detection	11/09/15	20/09/15	09
6.	**Logic Based Testing:** Overview, decision tables, path expressions, kv charts, specifications.	21/09/15	27/09/15	06
7	**State, State Graphs and Transition Testing:** State graphs, good & bad state graphs, state testing, Testability tips	28/09/15	04/10/15	07
8	**Graph Matrices and Applications:** Motivational overview, matrix of graph,	04/10/15	11/10/15	08

	relations, power of a matrix, node reduction algorithm, building tools. (Student should be given an exposure to a tool like JMeter or Winrunner).			

Total No. of Instructional periods available for the course:

Hours / Periods **65**

<table>
<tr><td colspan="2"></td><td>SCHEDULE OF INSTRUCTIONS</td><td>2015-16</td></tr>
</table>

	SCHEDULE OF INSTRUCTIONS	2015-16
	UNIT - I	Regulation: R12

FACULTY DETAILS:

Name of the Faculty:: **R.Navya**
Designation: **Asst.Prof**
Department:: **INFORMATION TECHNOLOGY**
The Schedule for the whole Course / Subject is:: **STM**

Sl. No.	Date	No. of Periods	Topics / Sub - Topics	Objectives & Outcome Nos.	References (Text Book, Journal…) Page No___ to ___
1	2/07/15	1	Introduction to STM	Achieved from CP OB's	Baris Beizer- Page no.:1
2	2/07/15	1	Purpose of testing	Achieved from CP OB's	Baris Beizer- Page no.:1
3	6/07/15	1	Dichotomies	Achieved from CP OB's	Baris Beizer- Page no.:9
4	8/07/15	1	Model for testing	Achieved from CP OB's	Baris Beizer- Page no.:15
5	09/07/15	1	Consequences of bugs	Achieved from CP OB's	Baris Beizer- Page no.:27
6	11/07/15	2	Taxonomy of bugs	Achieved from CP OB's	Baris Beizer- Page no.:33

Signature of Faculty
Date

Note: 1. ENSURE THAT ALL TOPICS SPECIFIED IN THE COURSE ARE MENTIONED.
   2. ADDITIONAL TOPICS COVERED, IF ANY, MAY ALSO BE SPECIFIED **BOLDLY**.
   3. MENTION THE CORRESPONDING COURSE OBJECTIVE AND OUT COME NUMBERS AGAINST EACH TOPIC.

FACULTY DETAILS:

Name of the Faculty:: **R.Navya**
Designation: **Asst.Prof**
Department:: **INFORMATION TECHNOLOGY**
The Schedule for the whole Course / Subject is:: **STM**

Sl. No.	Date	No. of Periods	Topics / Sub - Topics	Objectives & Outcome Nos.	References (Text Book, Journal...) Page No___ to ___
1	12/07/15	2	Basic concepts of path testing	Achieved from CP OB's	Baris Beizer- Page no.:59
2	15/07/15	1	Predicates	Achieved from CP OB's	Baris Beizer- Page no.:92
3	16/07/15 & 19/07/15	2	Path predicates and achievable paths	Achieved from CP & OB's	Baris Beizer- Page no.:92
4	22/07/15	1	Path sensitizing	Achieved from CP OB's	Baris Beizer- Page no.:101
5	25/07/15 & 26/07/15	2	Path instrumentation	Achieved from CP OB's	Baris Beizer- Page no.:109
6	29/07/15	1	Applications of path testing	Achieved from CP OB's	Baris Beizer- Page no.:115

Signature of Faculty
Date

Note: 1. ENSURE THAT ALL TOPICS SPECIFIED IN THE COURSE ARE MENTIONED.
2. ADDITIONAL TOPICS COVERED, IF ANY, MAY ALSO BE SPECIFIED **BOLDLY**.
MENTION THE CORRESPONDING COURSE OBJECTIVE AND OUT COME NUMBERS AGAINST EACH TOPIC.

<table>
<tr><td colspan="3">

SCHEDULE OF INSTRUCTIONS

UNIT - III
</td><td>

2015-16

Regulation: R 12
</td></tr>
</table>

FACULTY DETAILS:

Name of the Faculty:: **R.Navya**
Designation: **Asst.Prof**
Department::   **INFORMATION TECHNOLOGY**
The Schedule for the whole Course / Subject is::   **STM**

Sl. No.	Date	No. of Periods	Topics / Sub - Topics	Objectives & Outcome Nos.	References (Text Book, Journal...) Page No___ to ___
1	30/07/15	1	Introduction to Transaction flows	Achieved from CP OB's	Baris Beizer- Page no.:122
2	01/08/15	2	Transaction flow testing techniques	Achieved from CP OB's	Baris Beizer- Page no.:133
3	03/08/15	2	Introduction to Data flow testing	Achieved from CP OB's	Baris Beizer- Page no.:155
4	12/08/15	2	Basics of data flow testing	Achieved from CP OB's	Baris Beizer- Page no.:155
5	13/08/15	2	Strategies in data flow testing	Achieved from CP OB's	Baris Beizer- Page no.:161
6	17/08/15	2	Application of data flow testing	Achieved from CP OB's	Baris Beizer- Page no.:168

Signature of Faculty
Date

Note: 1. ENSURE THAT ALL TOPICS SPECIFIED IN THE COURSE ARE MENTIONED.
2. ADDITIONAL TOPICS COVERED, IF ANY, MAY ALSO BE SPECIFIED **BOLDLY**.
MENTION THE CORRESPONDING COURSE OBJECTIVE AND OUT COME NUMBERS AGAINST EACH TOPIC.

<table>
<tr><td colspan="2"></td><td>SCHEDULE OF INSTRUCTIONS</td><td>2015-16</td></tr>
<tr><td colspan="2"></td><td>UNIT - IV</td><td>Regulation: R 12</td></tr>
</table>

FACULTY DETAILS:

Name of the Faculty:: **R.Navya**
Designation: **Asst.Prof**
Department:: **INFORMATION TECHNOLOGY**
The Schedule for the whole Course / Subject is:: **STM**

Sl. No.	Date	No. of Periods	Topics / Sub - Topics	Objectives & Outcome Nos.	References (Text Book, Journal...) Page No___ to ___
1	20/08/15	1	Introduction to Domains and paths	Achieved from CP OB's	Baris Beizer- Page no.:173
2	22/08/15 & 23/08/15	2	Nice and ugly domains	Achieved from CP OB's	Baris Beizer- Page no.:182
3	24/08/15 & 31/08/15	2	Domain testing	Achieved from CP OB's	Baris Beizer- Page no.:192
4	03/12/15 04/12/15 & 05/0/15	3	Domains and interfaces testing	Achieved from CP OB's	Baris Beizer- Page no.:202
5	06/12/15 & 10/12/15	2	Domains and testability	Achieved from CP OB's	Baris Beizer- Page no.:207

Signature of Faculty
Date

Note: 1. ENSURE THAT ALL TOPICS SPECIFIED IN THE COURSE ARE MENTIONED.
 2. ADDITIONAL TOPICS COVERED, IF ANY, MAY ALSO BE SPECIFIED **BOLDLY**.
MENTION THE CORRESPONDING COURSE OBJECTIVE AND OUT COME NUMBERS AGAINST EACH TOPIC.

<table>
<tr><td colspan="2" rowspan="2"></td><td rowspan="2">**SCHEDULE OF INSTRUCTIONS**

UNIT - V</td><td>2015-16</td></tr>
<tr><td>Regulation: R 12</td></tr>
</table>

FACULTY DETAILS:

Name of the Faculty:: **R.Navya**
Designation: **Asst.Prof**
Department::   **INFORMATION TECHNOLOGY**
The Schedule for the whole Course / Subject is::   **STM**

Sl. No.	Date	No. of Periods	Topics / Sub - Topics	Objectives & Outcome Nos.	References (Text Book, Journal…) Page No___ to ___
1	11/12/15	1	Introduction to path product & path expression	Achieved from CP OB's	Baris Beizer- Page no.:244
2	12/12/15 & 13/12/15	2	Reduction procedure	Achieved from CP OB's	Baris Beizer- Page no.:251
3	15/12/15, 17/12/15 & 19/12/15	3	Applications	Achieved from CP OB's	Baris Beizer- Page no.:257
4	20/12/15	2	Regular expressions	Achieved from CP OB's	Baris Beizer- Page no.:278
5	21/12/15	2	Flow anomaly detection	Achieved from CP OB's	Baris Beizer- Page no.:278

Signature of Faculty
Date

Note: 1. ENSURE THAT ALL TOPICS SPECIFIED IN THE COURSE ARE MENTIONED.
  2. ADDITIONAL TOPICS COVERED, IF ANY, MAY ALSO BE SPECIFIED **BOLDLY**.
MENTION THE CORRESPONDING COURSE OBJECTIVE AND OUT COME NUMBERS AGAINST EACH TOPIC.

FACULTY DETAILS:

Name of the Faculty:: **R.Navya**
Designation: **Asst.Prof**
Department:: **INFORMATION TECHNOLOGY**
The Schedule for the whole Course / Subject is:: **STM**

Sl. No.	Date	No. of Periods	Topics / Sub - Topics	Objectives & Outcome Nos.	References (Text Book, Journal...) Page No___ to ___
1	21/12/15	1	Introduction to logic based testing	Achieved from CP OB's	Baris Beizer
2	24/12/15	2	Overview	Achieved from CP OB's	Baris Beizer- Page no.:322
3	25/12/15	2	Decision tables	Achieved from CP OB's	Baris Beizer- Page no.:322
4	26/12/15	2	Path expressions	Achieved from CP OB's	Baris Beizer- Page no.:332
5	27/12/15	2	KV charts	Achieved from CP OB's	Baris Beizer- Page no.:343
6	28/12/15	2	Specifications	Achieved from CP OB's	Baris Beizer- Page no.:352

Signature of Faculty
Date

Note: 1. ENSURE THAT ALL TOPICS SPECIFIED IN THE COURSE ARE MENTIONED.
2. ADDITIONAL TOPICS COVERED, IF ANY, MAY ALSO BE SPECIFIED **BOLDLY**.
MENTION THE CORRESPONDING COURSE OBJECTIVE AND OUT COME NUMBERS AGAINST EACH TOPIC.

	SCHEDULE OF INSTRUCTIONS	2015-16
	UNIT - VII	Regulation: R 12

FACULTY DETAILS:

Name of the Faculty:: **R.Navya**
Designation: **Asst.Prof**
Department:: **INFORMATION TECHNOLOGY**
The Schedule for the whole Course / Subject is:: **STM**

Sl. No.	Date	No. of Periods	Topics / Sub - Topics	Objectives & Outcome Nos.	References (Text Book, Journal...) Page No___ to ___
1	28/12/15	2	Introduction to state graphs	Achieved from CP OB's	Baris Beizer- Page no.:364
2	01/10/15	2	Good & bad state graphs	Achieved from CP OB's	Baris Beizer- Page no.:373
3	03/10/15	2	State testing	Achieved from CP OB's	Baris Beizer- Page no.:387
4	04/10/15	2	Testability tips	Achieved from CP OB's	Baris Beizer- Page no.:391

Signature of Faculty
Date

Note: 1. ENSURE THAT ALL TOPICS SPECIFIED IN THE COURSE ARE MENTIONED.
2. ADDITIONAL TOPICS COVERED, IF ANY, MAY ALSO BE SPECIFIED **BOLDLY**.
MENTION THE CORRESPONDING COURSE OBJECTIVE AND OUT COME NUMBERS AGAINST EACH TOPIC.

	SCHEDULE OF INSTRUCTIONS	2015-16
	UNIT - VIII	Regulation: R 12

FACULTY DETAILS:

Name of the Faculty:: **R.Navya**
Designation: **Asst.Prof**
Department:: **INFORMATION TECHNOLOGY**
The Schedule for the whole Course / Subject is:: **STM**

Sl. No.	Date	No. of Periods	Topics / Sub - Topics	Objectives & Outcome Nos.	References (Text Book, Journal…) Page No___ to ___
1	05/10/15	2	Introduction to Motivational overview	Achieved from CP OB's	Baris Beizer- Page no.:397
2	06/10/15	3	Matrix of graph	Achieved from CP OB's	Baris Beizer- Page no.:399
3	07/10/15	2	Relations	Achieved from CP OB's	Baris Beizer- Page no.:402
4	08/10/15	2	Power of matrix	Achieved from CP OB's	Baris Beizer- Page no.:405
5	12/10/15	3	Node reduction algorithm	Achieved from CP OB's	Baris Beizer- Page no.:415
6	11/10/15	2	Building tools	Achieved from CP OB's	Baris Beizer- Page no.:421

Signature of Faculty
Date

Note: 1. ENSURE THAT ALL TOPICS SPECIFIED IN THE COURSE ARE MENTIONED.
2. ADDITIONAL TOPICS COVERED, IF ANY, MAY ALSO BE SPECIFIED **BOLDLY**.
MENTION THE CORRESPONDING COURSE OBJECTIVE AND OUT COME NUMBERS AGAINST EACH TOPIC.

<table>
<tr><td rowspan="2"></td><td rowspan="2"></td><td>2015-16</td></tr>
<tr><td>COURSE COMPLETION STATUS</td><td>Regulation: R 12</td></tr>
</table>

FACULTY DETAILS:
Name of the Faculty:: **E.Vishnu VardhaReddy**
Subject:: **STM**   Subject Code **57047**
 Department::   **IT**
Actual Date of Completion & Remarks, if any

Units	Remarks	Nos. of Objectives Achieved
Unit 1	Completed	Achieved all objectives from CP
Unit 2	Completed	Achieved all objectives from CP
Unit 3	Completed	Achieved all objectives from CP
Unit 4	Completed	Achieved all objectives from CP
Unit 5	Completed	Achieved all objectives from CP
Unit 6	Completed	Achieved all objectives from CP
Unit 7	Completed	Achieved all objectives from CP
Unit 8	Completed	Achieved all objectives from CP

Signature of Dean of School   **Signature of Faculty**
Date: **Date:**

NOTE: AFTER THE COMPLETION OF EACH UNIT MENTION THE NUMBER OF OBJECTIVES ACHIEVED.

FACULTY DETAILS:

Name of the Faculty:: **R.Navya**
Designation: **Asst.Prof**
Department:: **INFORMATION TECHNOLOGY**
The Schedule for the whole Course / Subject is:: **STM**

Date:

This Tutorial corresponds to Unit Nos.1 & 8   Time:

Q1. Real-time Environment examples

Q2. Why we are learn this subject

Please write the Questions / Problems / Exercises which you would like to give to the students and also mention the objectives to which these questions / Problems are related.

Signature of Dean of School   **Signature of Faculty**
Date: **Date:**

FACULTY DETAILS:

Name of the Faculty::	**R.Navya**
Designation:	**Asst.Prof**
Department::	**INFORMATION TECHNOLOGY**
The Schedule for the whole Course / Subject is::	**STM**

Date:

This Tutorial corresponds to Unit Nos.   Time:

Q1.Types of testing and manual test and Automation Testing

2.QTP Installation steps

Please write the Questions / Problems / Exercises which you would like to give to the students and also mention the objectives to which these questions / Problems are related.

Signature of Dean of School   **Signature of Faculty**
Date: **Date:**

ILLUSTRATIVE VERBS **FOR STATING** **INSTRUCTIONAL OBJECTIVES**	2015-16	
	Regulation: R 12	

These verbs can also be used while framing questions for Continuous Assessment Examinations as well as for End – Semester (final) Examinations.

ILLUSTRATIVE VERBS FOR STATING **GENERAL OBJECTIVES**

Know	Understand	Analyze	Generate
Comprehend	Apply	Design	Evaluate

ILLUSTRATIVE VERBS FOR STATING **SPECIFIC OBJECTIVES:**

A. Cognitive Domain

1	2	3	4	5	6
Knowledge	**Comprehension Understanding**	**Application** of knowledge & comprehension	**Analysis** of whole w.r.t. its constituents	**Synthesis** combination of ideas/constituents	**Evaluation** judgement
Define	Convert	Change	Breakdown	Categorize	Appraise
Identify	Defend	Compute	Differentiate	Combine	Compare
Label	Describe (a	Demonstrate	Discriminate	Compile	Conclude
List	procedure)	Deduce	Distinguish	Compose	Contrast
Match	Distinguish	Manipulate	Separate	Create	Criticize
Reproduce	Estimate	Modify	Subdivide	Devise	Justify
Select	Explain why/how	Predict		Design	Interpret
State	Extend	Prepare		Generate	Support
	Generalize	Relate		Organize	
	Give examples	Show		Plan	
	Illustrate	Solve		Rearrange	
	Infer			Reconstruct	
	Summarize			Reorganize	
				Revise	

B. Affective Domain

Adhere	Resolve
Assist	Select
Attend	Serve
Change	Share
Develop	
Help	
Influence	
Initiate	

C. Psychomotor Domain (skill development)

Bend	Dissect	Insert	Perform	Straighten
Calibrate	Draw	Keep	Prepare	Strengthen
Compress	Extend	Elongate	Remove	Time
Conduct	Feed	Limit	Replace	Transfer
Connect	File	Manipulate	Report	Type
Convert	Grow	Move precisely	Reset	Weigh
Decrease	Handle	Operate	Run	
Demonstrate	Increase	Paint	Set	

Name of the Faculty: **R.Navya**

Subject **STM**

Unit **I**

INSTRUCTIONAL OBJECTIVES:

Session No	Topics to be covered	Time	Ref	Teaching Method
1	Introduction to STM	1	Baris Beizer	Block Board
2	Purpose of testing	1	Baris Beizer	Block Board
3	Dichotomies	1	Baris Beizer	Block Board
4	Model for testing	1	Baris Beizer	Block Board
5	Consequences of bugs	1	Baris Beizer	Block Board
6	Taxonomy of bugs	2	Baris Beizer	Block Board

On completion of this lesson the student shall be able to(Outcomes)

Purpose of testing, Dichotomies, model for testing, consequences of bugs, taxonomy of Bugs

Assignment / Questions

1. Why is it impossible for a tester to find all the bugs in a system? Why might it

not be necessary for a program to be completely free of defects before it is

delivered to its customers?

2. To what extent can testing be used to validate that the program is fit for its

purpose. Discuss?

3. What is meant by integration testing? Goals of Integration Testing?

4 . Explain white-box testing and behavioural testing?

5. State and explain various dichotomies in software testing?

6. Discuss about requirements, features and functionality bugs.

7. What are control and sequence bugs? How they can be caught?

Signature of Faculty

Note: Mention for each question the relevant objectives and outcomes.

Name of the Faculty: **R.Navya**

Subject **STM**   Subject Code **57047**

Unit ll

INSTRUCTIONAL OBJECTIVES:

Session No	Topics to be covered	Time	Ref	Teaching Method
1	Basic concepts of path testing	2	Baris Beizer	Block Board
2	Predicates	1	Baris Beizer	Block Board
3	Path predicates and achievable paths	2	Baris Beizer	Block Board
4	Path sensitizing	1	Baris Beizer	Block Board
5	Path instrumentation	2	Baris Beizer	Block Board
6	Applications of path testing	1	Baris Beizer	Block Board

On completion of this lesson the student shall be able to

1. Learn about Basics concepts of path testing, predicates, path predicates and achievable paths, path sensitizing, path instrumentation, application of path testing.
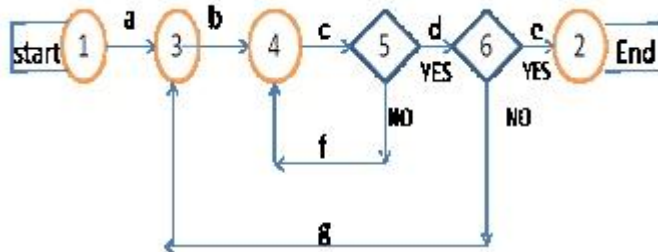
Assignment / Questions

1) Consider the following flow - graph? Select optimal number of paths to achieve C1+C2 (statement coverage + branch coverage).

2) Explain various loops with an example?

3) Explain concatenated loops with an example?

4) State and explain various kinds of predicate blindness with examples?

5) What are link counters? Discuss their use in path testing?

6) Discuss Traversal marker with an example.

7) What is meant by Co - incidental Correctness with example

8) What is meant by statement testing and branch testing with an example.

9) State and explain various path selection rules.

10) What is meant by program's control flow? How is it useful for path testing?

11) Discuss various flow graph elements with their notations.

Signature of Faculty

Note: Mention for each question the relevant objectives and outcomes.

<table>
<tr><td rowspan="2"></td><td rowspan="2">LESSON PLAN
Unit-III</td><td>2015-16</td></tr>
<tr><td>Regulation: R 12</td></tr>
</table>

Name of the Faculty: **R.Navya**

Subject **STM**   Subject Code **57047**

Unit III

INSTRUCTIONAL OBJECTIVES:

Session No	Topics to be covered	Time	Ref	Teaching Method
1	Introduction to Transaction flows	1	Baris Beizer	Block Board
2	Transaction flow testing techniques	2	Baris Beizer	Block Board
3	Introduction to Data flow testing	2	Baris Beizer	Block Board
4	Basics of data flow testing	2	Baris Beizer	Block Board
5	Strategies in data flow testing	2	Baris Beizer	Block Board
6	Application of data flow testing	2	Baris Beizer	Block Board

On completion of this lesson the student shall be able to(Outcomes)

1. Learn about **Transaction Flow Testing and**. **Data flow testing**

	ASSIGNMENT Unit-III	2015-16
		Regulation: R 12

Assignment / Questions

1. Distinguish Control Flow and Transaction flow.
2. What is meant by transaction flow testing. Discuss itssignificance.?
3. Discuss in detail data - flow testing strategies.
4. What are data - flow anomalies? How data flow testing can explore them
5. What are data-flow anomalies? How data flow testing can explore them?
6. What is meant by a program slice? Discuss about static and dynamic program slicing.
7. Explain the terms Dicing, Data-flow and Debugging.
8. What is meant by data flow model? Discuss various components of it?
9. Compare data flow and path flow testing strategies?
10. Explain data-flow testing with an example. Explain its generalizations and limitations.

Signature of Faculty

Note: Mention for each question the relevant objectives and outcomes.

Name of the Faculty: **R.Navya**

Subject **STM**　　　　　　　　　　Subject Code **57047**

Unit **IV**

INSTRUCTIONAL OBJECTIVES:

Session No	Topics to be covered	Time	Ref	Teaching Method
1	Introduction to Domains and paths	1	Baris Beizer	Block Board
2	Nice and ugly domains	2	Baris Beizer	Block Board
3	Domain testing	2	Baris Beizer	Block Board
4	Domains and interfaces testing	3	Baris Beizer	Block Board

On completion of this lesson the student shall be able to (Outcomes)

1. To learn **Domain Testing**

Assignment / Questions

1. Discuss with example the equal - span range/Doman compatibility bugs.
2. Discuss in detail about testability of Domains.
3. What is meant by Domain Dimensionality.
4. What is meant by nice - domain? Give an example for nice two dimensional domain.
5. Discuss
   i. Linear domain boundaries
   ii. Non linear domain boundaries
   iii. Complete domain boundaries
   iv. Incomplete domain boundaries
6. Explain various properties related to Ugly-domains.
7.. State and Explain various restrictions at domain testing processes.
8. What is meant by domain testing? Discuss the various applications of domain testing?
9. With a neat diagram, explain the schematic representation of domain testing.
10. Explain how one-dimensional domains are tested?
11. Discuss in detail the domains and interface testing.

Signature of Faculty

Note: Mention for each question the relevant objectives and outcomes.

Name of the Faculty: **R.Navya**

Subject   **DBMS**   Subject Code   **57047**

Unit   V

INSTRUCTIONAL OBJECTIVES:

Session No	Topics to be covered	Time	Ref	Teaching Method
1	Introduction to path product & path expression	1	Baris Beizer	Block Board
2	Reduction procedure	2	Baris Beizer	Block Board
3	Applications	3	Baris Beizer	Block Board
4	Regular expressions	2	Baris Beizer	Block Board
5	Flow anomaly detection	2	Baris Beizer	Block Board

On completion of this lesson the student shall be able to (Outcomes)

1. To learn about **Paths, Path Products and Regular Expressions**

2.

3.

4

	ASSIGNMENT **Unit-V**	2015-16
		Regulation: R 12

Assignment / Questions

1. Explain Regular Expressions and Flow Anomaly detection.
2. Example Huang's theorem with examples
3. Reduction procedure algorithm for the following flow graph:
4. Write Short Notes on
   i. Distributive Laws
   ii. Absorption Rule
   iii. Loops
   iv. Identity elements

5. Discuss Path Sums and Path Product. Discuss in brief applications of paths

Signature of Faculty

Note: Mention for each question the relevant objectives and outcomes.

Name of the Faculty: **R.Navya**

Subject **STM** Subject Code **57047**

Unit **VI**

INSTRUCTIONAL OBJECTIVES:

Session No	Topics to be covered	Time	Ref	Teaching Method
1	Introduction to logic based testing	1	Baris Beizer	Block Board
2	Overview	2	Baris Beizer	Block Board
3	Decision tables	2	Baris Beizer	Block Board
4	Path expressions	2	Baris Beizer	Block Board
5	KV charts	2	Baris Beizer	Block Board
6	Specifications	2	Baris Beizer	Block Board

On completion of this lesson the student shall be able to (Outcomes)

1. To learn about **Logic Based Testing**

2.

3.

4

Assignment / Questions

1. Reduce the following functions using K-Maps
   F(A,B,C,D) = P(4,5,6,7,8,12,13)+d(1,15)
2. Whether the predicates are restricted to binary truth-values or not. Explain.
3. What are decision tables? Illustrate the applications of decision tables. How is a decision table useful in testing. Explain with an example.
4. How can we determine paths in domains in Logic based testing?
5. How the Boolean expression can be used in test case design
6. Flow graphs are abstract representations of programs. Justify?
7. Explain prime implicant, sum of product form and product of sum form.
8. How can we form specifications into sentences? Write down different phrases that can be used for words?
9. Explain about the ambiguities and contradictions in specifications.?

Signature of Faculty

Note: Mention for each question the relevant objectives and outcomes.

Name of the Faculty: **R.Navya**

Subject **STM**   Subject Code   **57047**
Unit   **VII**

INSTRUCTIONAL OBJECTIVES:

Session No	Topics to be covered	Time	Ref	Teaching Method
1	Introduction to state graphs	2	Baris Beizer	Block Board
2	Good & bad state graphs	2	Baris Beizer	Block Board
3	State testing	2	Baris Beizer	Block Board
4	Testability tips	2	Baris Beizer	Block Board

On completion of this lesson the student shall be able to

1. To learn about **State, State Graphs and Transition Testing**.

2.

3.

4

Assignment / Questions

1. The behavior of a finite state machine is invariant under all encodings.Justify?
2. Write testers comments about state graphs
3. What are the types of bugs that can cause state graphs?
4. What are the principles of state testing. Discuss advantages and disadvantages.
5. Write the design guidelines for building finite state machine into code.
6. What are the software implementation issues in state testing? (
7. Explain about good state and bad state graphs.
8. Explain with an example how to convert specification into state-graph. Also discuss how contradictions can come out.
9. Write short notes on:
     i.   Transition Bugs
     ii.   Dead States
     iii. State Bugs
    iv   Encoding Bugs

Signature of Faculty

Note: Mention for each question the relevant objectives and outcomes.

Name of the Faculty: **R.Navya**

Subject   **STM**   Subject Code   **57047**
Unit   **VIII**

INSTRUCTIONAL OBJECTIVES:

Session No	Topics to be covered	Time	Ref	Teaching Method
1	Introduction to Motivational overview	2	Baris Beizer	Block Board
2	Matrix of graph	3	Baris Beizer	Block Board
3	Relations	2	Baris Beizer	Block Board
4	Power of matrix	2	Baris Beizer	Block Board
5	Node reduction algorithm	3	Baris Beizer	Block Board
6	Building tools	2	Baris Beizer	Block Board

On completion of this lesson the student shall be able to
1.To learn about **Graph Matrices and Applications**

2.

3.

4

	ASSIGNMENT Unit-VIII	2015-16
		Regulation: R 12

Assignment / Questions

1. How can the graph be represented in Matrix form?
2. Write a partition algorithm.
3. Discuss node reduction algorithm.
4. How can a node reduction optimization be done.
5. What are the matrix operations in tool building.
6. Discuss the algorithm for finding set of all paths
7. How can a relation matrix be represented and what are the properties of relations?
8. Explain cross-term reduction and node term reduction optimization.
9. Write about matrix powers and products.

Signature of Faculty

Note: Mention for each question the relevant objectives and outcomes.