**SRM UNIVERSITY**

**FACULTY OF ENGINEERING AND TECHNOLOGY**

**SCHOOL OF COMPUTING**

**DEPARTMENT OF SOFTWARE ENGINEERING**

**COURSE PLAN**

**SUBJECT CODE :** SE1020

**SUBJECT TITLE :** SOFTWARE MAINTENANCE AND ADMINISTRATION

**SEMESTER/YEAR : VI/III**

**SEMESTER DURATION :** Jan 2017 to May2017

**TIME TABLE:**

|  |  |  |
| --- | --- | --- |
| **DAY ORDER** | **HOUR** | **TIMING** |
| 3 | 3th | 10.40-11.30 |
| 4 | 5th | 1.25-2.15 |
| 5 | 5th | 1.25-2.15 |

**VENUE:** University Building 1204

**FACULTY DETAILS:**

|  |  |  |  |
| --- | --- | --- | --- |
| **NAME OF THE FACULTY** | **OFFICE** | **OFFICE HOUR** | **EMAIL ID** |
| **B.Jothi**  **Marianancy**  **M.Maheswari**  **Ms.Abirami** | **1204 UB** | **Monday to Friday 8.35 am to 5.00pm** | [**Jothi.b@ktr.srmuniv.ac.in**](mailto:Jothi.b@ktr.srmuniv.ac.in)  [**marianancy@ktr.srmuniv.ac.in**](mailto:marianancy@ktr.srmuniv.ac.in)  [**abirami.ms@ktr.srmuniv.ac.in.in**](mailto:Abirami.ms@ktr.srmuniv.ac.in.in)  **Maheswari.m@ktr.srmuniv.ac.in** |

**TEXT BOOKS**

1.Armstrong A Takang and Penny A.Grubb, “Software Maintenance: concepts and Practice”, International Thomson Computer press, London

**REFERENCES**

Roger S Pressman, “Software Engineering”, 6th edition, Tata McGraw-Hill, 2004

**PREREQUISITE:**Software engineering

**OBJECTIVE**

To study how to maintain and administrate the software

**ASSESSMENT DETAILS**

Cycle Test I - 15 Marks

Cycle Test II - 25 Marks

Surprise Test – 5 Marks

Attendance - 5 Marks

**TEST SCHEDULE**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Sl. No.** | **Test** | **Date** | **Topics** | **Duration** |
| 1 | Cycle Test I | As per Calendar | Units 1,2 | 2 Periods |
| 2 | Cycle Test II | As per Calendar | Units 3,4,5 | 3 Hrs |

**DETAILED SESSION PLAN**

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **UNIT I–FUNDAMENTALS OF SOFTWARE MAINTENANCE (9 hours)**  Meaning of software maintenance, software change, ongoing support, economic implications of modifying software, the nomenclature and image problem, software maintenance framework, potential solutions to maintenance problem. Maintenance process models: Definition of critical appraisal of traditional process models, maintenance process models. Program understanding: Aims of program comprehension, maintainers and their information needs comprehension process models, mental models, program comprehension strategies, factors that affect understanding, implications of comprehension theories and studies. | | | | | | | | | | |
| **S. No.** | **TOPIC(S) COVERED** | **EXECUTION METHOD** | **TEXT BOOK/ REFERENCE** | **ASSIGNMENT TOPIC** | **PRSENTATION/ SUBMISSION DUE DATE** | | **COURSE OBJECTIVE** | | **EXPECTED OUTCOME** | |
| **1** | Meaning of software maintenance, software change, ongoing support | Presentation | T1 - Armstrong A Takang and Penny A.Grubb, “Software Maintenance: concepts and Practice”, International Thomson Computer press, London | Assignment  Problem 1 | 1st week of feb 2017 | | 1,2,3 | | d,g | |
| **2** | economic implications of modifying software, the nomenclature and image problem, | Presentation | T1 |
| **3** | software maintenance framework, potential solutions to maintenance problem | Presentation | T1 |
| **4** | Maintenance process models: Definition of critical appraisal of traditional process models | Presentation | T1 |
| **5** | maintenance process models. Program understanding: Aims of program comprehension | Presentation | T1 |
| **6** | maintainers and their information needs comprehension process models | Presentation | T1 |
| **7,8** | mental models, program comprehension strategies, factors that affect understanding | Presentation | T1 |
| **9** | implications of comprehension theories and studies. | Presentation | T1 |
| **UNIT II-REVERSE ENGINEERING (9 hours)**  Definition, purposes and objectives, levels of reverse Engineering, supports techniques, benefits. Reuse and reusability: Definitions, objective and benefit of reuse, approach to reuse, domain Analysis, COMPONENTS engineering, reuse process model, factors that impact upon reuse. Maintenance measures, Definitions, objectives of software measurement, example measures, guidelines for selecting maintenance measures. | | | | | | | | | | |
| **10** | Definition, purposes and objectives, levels of reverse Engineering | Presentation | T1, Armstrong A Takang and Penny A.Grubb, “Software Maintenance: concepts and Practice”, International Thomson Computer press, London | Assignment  Problem 2 | | 4th week of Feb 2017 | | 1,2,5 | | a,d,g |
| **11** | supports techniques, benefits | Presentation | T1, |
| **12** | Reuse and reusability: Definitions, objective and benefit of reuse | Presentation | T1 |
| **13** | approach to reuse, domain Analysis | Presentation | T1,T2 |
| **14** | domain Analysis, COMPONENTS engineering, reuse process model, | Presentation | T1 |
| **15** | factors that impact upon reuse. | Presentation | T1 |
| **16** | Maintenance measures, Definitions, objectives of software measurement | Presentation | T1 |
| **17** | example measures, guidelines for selecting maintenance measures. | Presentation | T1 |
| **18** | example measures, guidelines for selecting maintenance measures.-CNTD | Presentation | T1 |
| **UNIT III-CONFIGURATION MANAGEMENT (9 hours)**  Definition for configuration management, change control, documentation. Management and organizational issues, Management responsibilities, enhancing maintenance productivity, maintenance teams, personnel Education and Training, organization modes. | | | | | | | | | | |
| **19** | Definition for configuration management | Presentation | T1 Armstrong A Takang and Penny A.Grubb, “Software Maintenance: concepts and Practice”, International Thomson Computer press, London | Assignment  Problem 3 | | 2nd week of March 2017 | | 1,4,5 | | d,e,h |
| **20** | change control, documentation | Presentation | T1 |
| **21** | Management and organizational issues | Presentation | T1 |
| **22** | Management responsibilities | Presentation | T1 |
| **23** | enhancing maintenance productivity | Presentation | T1 |
| **24** | maintenance teams | Presentation | T1 |
| **25** | personnel Education and Training | Presentation | T1 |
| **26** | organization modes | Presentation | T1 |
| **27** | organization modes-continuation | Presentation | T1 |
| **UNIT IV-BUILDING AND SUSTAINING MAINTAINABILITY (9 hours)**  Quality Assurance, fourth generation languages, object oriented paradigms. Maintenance tools: Criteria for selecting tools, taxonomy of tools, program understanding and reverse engineering testing, configuration management, and other tasks. Past, present and future of software maintenance. | | | | | | | | | | |
| **28** | Quality Assurance, fourth generation languages | Presentation | T1 Armstrong A Takang and Penny A.Grubb, “Software Maintenance: concepts and Practice”, International Thomson Computer press, London | Assignment  Problem 4 | | 4th week of March 2017 | | 1,3 | | a,d,e,h,j |
| **29** | object oriented paradigms | Presentation | T1 |
| **30** | Maintenance tools: Criteria for selecting tools | Presentation | T1 |
| **31** | taxonomy of tools | Presentation | T1 |
| **32** | program understanding and reverse engineering testing | Presentation | T1 |
| **33** | configuration management, and other tasks | Presentation | T1 |
| **34** | Past, present and future of software maintenance | Presentation | T1 |
| **35** | present of software maintenance | Presentation | T1 |
| **36** | future of software maintenance | Presentation | T1 |
| **UNIT V-SOFTWARE ADMINISTRATION (9 hours)**  Analyzing system logs, operating system updates, patches, and configuration changes, Performing backups. Installing and configuring new hardware and software. Adding, removing, or updating user account information, resetting passwords, System performance tuning. Performing routine audits of systems and software. | | | | | | | | | | |
| **37** | Analyzing system logs, operating system updates | Presentation | T1 Armstrong A Takang and Penny A.Grubb, “Software Maintenance: concepts and Practice”, International Thomson Computer press, London | Assignment problem 5 | | April 2nd week 2017 | | 4 | | d,e,h |
| **38** | patches, and configuration changes | Presentation | T1 |
| **39** | Performing backups | Presentation | T1,T2 |
| **40** | Installing and configuring new hardware and software | Presentation | T1 |
| **41** | Adding, removing, or updating user account information | Presentation | T1, |
| **42** | resetting passwords | Presentation | T1 |
| **43** | System performance tuning | Presentation | T1 |
| **44** | Performing routine audits of systems and software. | Presentation | T1 |
| **45** | Performing routine audits of systems and software.-contd | Presentation | T1 |

**Prepared by Approved by**

B.Jothi  HOD/SWE

**SE1020-SOFTWARE MAINTENANCE AND ADMINISTRATION**

**Course code :** SE1020

**Course Title :** Software Maintenance and Administration

**Semester :**VI

**Course Duration :** Jan 2017 to May 2017

**Course Execution**

Students will be splitted into 5 members per team and a case study to be solved for each unit will be assigned uniquely .

* Unit 1 team members have to analyze the case study by using software maintenance life cycle models and present it to give proper justification to choose particular model.
* Unit 2 team members have to justify the case study with proper reuse component techniques to categorize it under reverse engineering or forward engineering approach by analyzing the domain analysis

* Unit 3 team members have to present a case study to record the configuration management techniques and enhance change management documentation and prioritization
* Unit 4 students have to present a case study relevant to maintenance tools to support 4th generation languages
* Unit 5 students have to present a activity with demo related software administration like analyzing system logs, operating system updates etc