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| Department of Information Technology | | LP: IT18005 |
| B-E/B.Tech/M.E/M.Tech : Information Technology | Regulation:2018 | Rev. No: 00 |
| PG Specialisation : NA | | Date: 25-08-2021 |
| Sub. Code / Sub. Name : IT18005 – Free and Open Source Software. | | |
| Unit : I | | |

Unit Syllabus:

INTRODUCTION

9

Introduction to Open sources – Need of Open Sources, Advantages of Open Sources–FOSS usage, Free Software Movement, Certification courses issues -Global and Indian, Application of Open Sources, Commercial aspects of open source movement, Introduction to Open Source Hardware.

Objective:

To be exposed to the context and operation of free and open source software (FOSS) communities and associated software projects.

| Session No * | Topics to be covered | Ref | Teaching Aids |
|--|---|---|---------------|
| 1 | Introduction to Open sources | https://www.synopsys.com/glossary | PPT |
| 2 | Need of Open Sources | https://www.toolbox.com/tech/enterprise-software | PPT |
| 3 | Advantages of Open Sources | https://enterpriseproject.com/article/2015/1/top-advantages-open-source-offers | PPT |
| 4 | FOSS usage | https://www.synopsys.com/blogs/software-security/foss-management-systems/ | PPT |
| 5 | Free Software Movement | https://www.gnu.org/philosophy/free-software-intro.en.html | PPT |
| 6 | Certification courses issues, Global and Indian | https://www.pmis-consulting.com/issue-with-certification-training/ | PPT |
| 7 | Application of Open Sources | http://www.gov.pe.ca/photos/original/IPEI_ebiz_oss | PPT |
| 8 | Commercial aspects of open source movement | https://www.webiny.com/blog/what-is-commercial-open- | PPT |
| 9 | Introduction to Open Source Hardware. | https://www.eetimes.com/an-introduction-to-open-source-hardware-development | PPT |
| Content beyond syllabus covered (if any): | | | |

* Session duration: 50 minutes



Sub. Code / Sub. Name: IT18005 – Free and Open Source Software.

Unit : II

Unit Syllabus: SHELL SCRIPTING

9

Introduction to Linux Operating System -Kernel Mode- User Mode, Development with Linux: GNU products- Development tools, Kernel Operations, Processes: Basic Concepts- Basic System Calls- Scheduling – Personalities – Cloning, Signals: Sending Signals-signal Handling- Complementary System Calls.

Objective:

To be familiar with Linux OS and its functionalities.

| Session No * | Topics to be covered | Text | Teaching Aids |
|--------------|--|--------------------------|---------------|
| 10 | Introduction to Linux Operating System | 1 ch-1; pg 1-4 | PPT |
| 11 | Kernel Mode- User Mode | 1 ch-2; pg 12-14 | PPT |
| 12 | Development with Linux: GNU products | 1 ch-3; pg 15-16 | PPT |
| 13 | Development tools, Kernel Operations | 1 ch-3; pg 17-22 & 28-34 | PPT |
| 14 | Processes: Basic Concepts | 1 ch-4; pg 37-42 | PPT |
| 15 | Basic System Calls- Scheduling – Personalities – Cloning | 1 ch-4; pg 42-57 | PPT |
| 16 | Signals: Sending Signals | 1 ch-5; pg 91-96 | PPT |
| 17 | Signal Handling | 1 ch-5; pg 97-98 | PPT |
| 18 | Complementary System Calls | 1 ch-5; pg 102 - 112 | PPT |

Content beyond syllabus covered (if any):



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Unit : III

Unit Syllabus : Python

9

Python Basics- Python Objects – Numbers, Sequences: Strings, Lists and Tuples, Mapping and Set Types, Conditionals and loops. Files: Input and Output.

Objective:

To read and write simple python programs using conditionals and loops, files.

| Session No * | Topics to be covered | Text | Teaching Aids |
|--------------|-------------------------|---------------------|---------------|
| 19 | Python Basics | 2-ch 3; pg 60-85 | PPT |
| 20 | Python Objects | 2-ch 4; pg 88-117 | PPT |
| 21 | Numbers | 2-ch 5; pg 120-151 | PPT |
| 22 | Sequences: Strings | 2-ch 6; pg 156-208 | PPT |
| 23 | Lists | 2-ch 6; pg 209 -224 | PPT |
| 24 | Tuples | 2-ch 6; pg 232-235 | PPT |
| 25 | Mapping and Set Types | 2-ch 7; pg 252-283 | PPT |
| 26 | Conditionals and loops | 2-ch 8; pg 20-320 | PPT |
| 27 | Files: Input and Output | 2-ch 9; pg 324-353 | PPT |

Content beyond syllabus covered (if any):



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Unit : IV

Unit Syllabus : PERL

9

Perl backgrounder – Perl overview, Perl parsing rules – Variables and Data, Statements and Control structures – Subroutines, Packages, CASE STUDY: Government Policy toward Open Source (EGovernance).

Objective:

To learn scripting language PERL and develop programs.

| Session No * | Topics to be covered | Ref | Teaching Aids |
|---|--|--------------------|---------------|
| 28 | Perl backgrounder | 3-Ch 1; pg 3-15 | PPT |
| 29 | Perl overview | 3-Ch 2; pg 17-35 | PPT |
| 30 | Perl parsing rules | 3-Ch 3; pg 37-70 | PPT |
| 31 | Variables and Data | 3-Ch 4; pg 73-98 | PPT |
| 32 | Statements | 3-Ch 5; pg 109-113 | PPT |
| 33 | Control structures | 3-Ch 5; pg 114-122 | PPT |
| 34 | Subroutines | 3-Ch 6; pg 125-141 | PPT |
| 35 | Packages | 3-Ch 6; pg 143-146 | PPT |
| 36 | CASE STUDY: Government Policy toward Open Source (EGovernance) | | PPT |
| Content beyond syllabus covered (if any): CASE STUDY: Government Policy toward Open Source (EGovernance) | | | |



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Unit : V

Unit Syllabus : JSON

9

JSON Overview - Datatypes, Arrays, Objects, Schemas, Parsing, Stringify, JSONP, JSON with MongoDB.

Objective:

To learn JSON and data interchange concepts.

| Session No * | Topics to be covered | Ref | Teaching Aids |
|--------------|----------------------|---|---------------|
| 37 | JSON Overview | https://www.w3schools.com/js/js_json_intro.asp | PPT |
| 38 | Datatypes | https://www.w3schools.com/js/js_json_datatypes.asp | PPT |
| 39 | Arrays | https://www.w3schools.com/js/js_json_arrays.asp | PPT |
| 40 | Objects | https://www.w3schools.com/js/js_json_objects.asp | PPT |
| 41 | Schemas | https://json-schema.org/learn/getting- | PPT |
| 42 | Parsing | https://www.w3schools.com/js/js_json_parse.asp | PPT |
| 43 | Stringify | https://www.w3schools.com/js/js_json_stringify.asp | PPT |
| 44 | JSONP | https://www.w3schools.com/js/js_json_jsonp.asp | PPT |
| 45 | JSON with MongoDB | https://www.mongodb.com/js-on-and-bson | PPT |

Content beyond syllabus covered (if any):



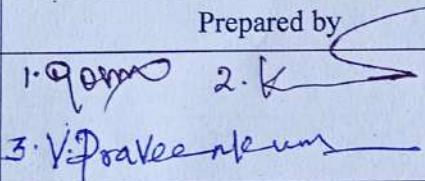
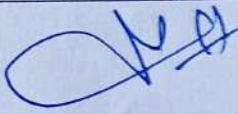
Sub Code / Sub Name: IT18005 – Free and Open Source Software.

TEXT BOOKS:

1. Remy Card, Eric Dumas and Frank Mevel, "The Linux Kernel Book", Wiley Publications, 2003.
2. Wesley J. Chun, "Core Python Programming", Second Edition, Pearson Education, 2007.

REFERENCES:

1. Alicia Gibb, "Building Open Source Hardware", Addison Wesley, 2015.
2. w3schools.org
3. Martin C. Brown, "Perl: The Complete Reference", Second Edition, McGraw-Hill, Indian Reprint 2009.

| | Prepared by | Approved by |
|-------------|---|--|
| Signature |  |  |
| Name | Dr. N. Gobalakrishnan Mr. V.R. Vimal Mr. V. Praveenkumar | Dr. V. Vidhya |
| Designation | Associate Professor Assistant Professor Assitant Professor | Professor |
| Date | 25.08.2021 | 25.08.2021 |
| Remarks *: | | |

* If the same lesson plan is followed in the subsequent semester/year it should be mentioned and signed by the Faculty and the HOD