

## Program Content

Semester	I																													
Course Code:	IT1306																													
Course Name:	Free and Open Source Software for Personal Computing																													
Credit Value:	3																													
Core/Optional	Core																													
Hourly Breakdown	Theory	Practical	Independent Learning																											
	30 hrs.	30 hrs.	90 hrs.																											
<b>Course Aim/Intended Learning Outcomes:</b> At the completion of this course student will be able to <ul style="list-style-type: none"><li>• Distinguish different types of open source software for personal computing and their use.</li><li>• Use files and folders in an open source operating system.</li><li>• Prepare documents using an open source word processing application.</li><li>• Prepare spreadsheets using an open source spreadsheets application.</li><li>• Prepare databases using an open source database management application.</li><li>• Prepare presentations using an open source presentation application.</li><li>• Prepare visuals using an open source graphic design application.</li></ul>																														
<b>Required Tools</b> Operating System – Ubuntu 18.04 Libre Office 6.3 – Free and Open Source Office Suit <ul style="list-style-type: none"><li>• LibreOffice Writer – Word Processing Software</li><li>• LibreOffice Calc – Spreadsheets Application Software</li><li>• LibreOffice Base – Database Application Software</li><li>• LibreOffice Impress – Presentations Application Software</li></ul> GIMP 2.10 – Graphic Design Software  Libre Office 6.3 can be downloaded from <a href="https://www.libreoffice.org/discover/libreoffice/">https://www.libreoffice.org/discover/libreoffice/</a> GIMP 2.10.12 or up version can be downloaded from <a href="https://www.gimp.org/downloads/">https://www.gimp.org/downloads/</a>																														
<b>Outline of the Syllabus</b>																														
<table><tr><th>Topics</th><th>Lecture Hours</th><th>Practical Hours</th></tr><tr><td>1. Introduction to FOSS -Free and Open source Software</td><td>01</td><td>01</td></tr><tr><td>2. Managing Files and Folders in a FOSS Operating System</td><td>02</td><td>04</td></tr><tr><td>3. Word Processing for Electronic Documentation</td><td>07</td><td>07</td></tr><tr><td>4. Spreadsheet for Calculation</td><td>07</td><td>07</td></tr><tr><td>5. Databases for Processing Data</td><td>05</td><td>04</td></tr><tr><td>6. Presentations for Effective Communications</td><td>04</td><td>03</td></tr><tr><td>7. Multimedia Content Development</td><td>04</td><td>04</td></tr><tr><td>Total</td><td>30</td><td>30</td></tr></table>				Topics	Lecture Hours	Practical Hours	1. Introduction to FOSS -Free and Open source Software	01	01	2. Managing Files and Folders in a FOSS Operating System	02	04	3. Word Processing for Electronic Documentation	07	07	4. Spreadsheet for Calculation	07	07	5. Databases for Processing Data	05	04	6. Presentations for Effective Communications	04	03	7. Multimedia Content Development	04	04	Total	30	30
Topics	Lecture Hours	Practical Hours																												
1. Introduction to FOSS -Free and Open source Software	01	01																												
2. Managing Files and Folders in a FOSS Operating System	02	04																												
3. Word Processing for Electronic Documentation	07	07																												
4. Spreadsheet for Calculation	07	07																												
5. Databases for Processing Data	05	04																												
6. Presentations for Effective Communications	04	03																												
7. Multimedia Content Development	04	04																												
Total	30	30																												

## **Course Content:**

1. Introduction to FOSS - Free and Open Source Software (1 hrs.)
  - 1.1. Introduction to major software classification
    - 1.1.1. System Software
    - 1.1.2. Application Software
  - 1.2. Introduction to Free and Open Source Software (FOSS) **[Ref 1]**
2. Managing Files and Folders in FOSS OS (2 hrs.)
  - 2.1. FOSS OS Installation (Ubuntu)
    - 2.1.1. Installing Ubuntu in a Virtual Box **[Ref 2]**
    - 2.1.2. Installing Ubuntu as the Primary Operating System **[Ref 3: Pg. (9-17)]**
    - 2.1.3. Installing Ubuntu with another Operating System (Dual-Booting) **[Ref 3: Pg. (13)]**
  - 2.2. Understanding Ubuntu Desktop **[Ref 3: Pg. (19-26)]**
  - 2.3. File Manager in Ubuntu **[Ref 3: Pg. (26-29)]**
  - 2.4. Using Command Line in Ubuntu **[Ref 4]**
    - 2.4.1. Opening a Terminal
    - 2.4.2. Creating Files and Folders
    - 2.4.3. Moving and Manipulating Files and Folders
3. Word Processing for Electronic Documentation (7 hrs.)
  - 3.1. Introduction to Word Processing
    - 3.1.1. What is Word Processing
    - 3.1.2. Different Word Processing application software
  - 3.2. Getting Familiarize with the working environment **[Ref 5: Pg. (22-44)]**
    - 3.2.1. Parts of the main Writer window
    - 3.2.2. Basic File Operations
    - 3.2.3. Document Views
    - 3.2.4. Supported file formats
  - 3.3. Typing a simple document **[Ref 5: Pg. (46-64)]**
    - 3.3.1. Working with Text and Symbols **[Ref 5: Pg. (46-51)]**
    - 3.3.2. Checking Spelling and Grammar **[Ref 5: Pg. (52-55)]**
    - 3.3.3. Using synonyms and the thesaurus **[Ref 5: Pg. (57-58)]**
    - 3.3.4. Changing the case of selected text **[Ref 5: Pg. (63-64)]**
  - 3.4. Formatting Documents
    - 3.4.1. Formatting Paragraphs & Characters **[Ref 5: Pg. (84-89), (92-97)]**
    - 3.4.2. Setting tab positions **[Ref 5: Pg. (91-92)]**
    - 3.4.3. Working with Numbered / Bulleted Lists **[Ref 5: Pg. (99-101), (257-272)]**
    - 3.4.4. Formatting Pages **[Ref 5: Pg. (104-121)]**
  - 3.5. Working with styles and templates
    - 3.5.1. Introduction to styles and templates **[Ref 5: Pg. (167-189), (216-217)]**
    - 3.5.2. Creating new styles **[Ref 5: Pg. (191-192)]**
    - 3.5.3. Working with Paragraph styles **[Ref 5: Pg. (193-203)]**
    - 3.5.4. Working with Page styles **[Ref 5: Pg. (207-209)]**

- 3.5.5. Working with List styles [Ref 5: Pg. (209-210)]
- 3.5.6. Creating and editing templates [Ref 5: Pg. (217-219)]
- 3.5.7. Adding templates from other sources [Ref 5: Pg. (219-221)]
- 3.5.8. Organizing templates [Ref 5: Pg. (222-223)]
- 3.6. Working with Graphics and objects
  - 3.6.1. Adding images [Ref 5: Pg. (226-229)]
  - 3.6.2. Working with drawing tools [Ref 5: Pg. (217-219)]
  - 3.6.3. Delete, export and compressing images [Ref 5: Pg. (235)]
  - 3.6.4. Positioning images within text [Ref 5: Pg. (238-245)]
  - 3.6.5. Captioning images [Ref 5: Pg. (245-247)]
  - 3.6.6. Using Fontwork [Ref 5: Pg. (252-255)]
- 3.7. Working with Tables
  - 3.7.1. Basic table operations [Ref 5: Pg. (278-290),(297-300)]
  - 3.7.2. Formatting tables [Ref 5: Pg. (291-293)]
  - 3.7.3. Data entry and manipulation in tables [Ref 5: Pg (294 – 296)]
- 3.8. Organizing and Structuring the document
  - 3.8.1. Table of contents [Ref 5: Pg. (324 - 333)]
  - 3.8.2. Indexes [Ref 5: Pg. (334 - 342)]
  - 3.8.3. Bibliographies [Ref 5: Pg. (343 - 353)]
  - 3.8.4. Using columns in page layout [Ref 5: Pg. (124 - 126)]
  - 3.8.5. Using sections for page layout [Ref 5: Pg. (132 - 138)]
  - 3.8.6. Page Orientation [Ref 5: Pg. (139 - 143)]
- 3.9. Exporting and Emailing
  - 3.9.1. Exporting to PDF, ePub and Other Formats [Ref 5: Pg. (153 - 160)]
  - 3.9.2. Emailing and Fax Writer documents [Ref 5: Pg. (161 - 163)]
  - 3.9.3. Digital Signing [Ref 5: Pg. (163 - 164)]
- 3.10. Mail Merge [Ref 5: Pg. (301-322)]
  - 3.10.1. Create a Mail merge data source
  - 3.10.2. Creating and Editing merged documents
  - 3.10.3. Printing merged documents
  - 3.10.4. Printing envelopes
  - 3.10.5. Mail merge wizard
- 3.11. Advanced Text options
  - 3.11.1. Tracking changes to a document [Ref 5: Pg. (71 - 75)]
  - 3.11.2. Adding Comments [Ref 5: Pg. (75 - 76)]
  - 3.11.3. Using Footnotes and Endnotes [Ref 5: Pg. (76 - 77), 116]
  - 3.11.4. Linking to another part of a document [Ref 5: Pg. (70 - 80)]
- 4. Spreadsheet for Calculations (8 hrs.)
  - 4.1. Introduction to Spreadsheet software
    - 4.1.1. Importance of Spreadsheet software
    - 4.1.2. Different Spreadsheet application software
  - 4.2. Getting Familiarize with the Working Environment [Ref 6: Pg. (16 - 36)]
    - 4.2.1. Basic concepts in Spreadsheet Software
    - 4.2.2. Basic File Operations
    - 4.2.3. Navigation
    - 4.2.4. Selection Technique

- 4.2.5. Working with Rows and Columns
- 4.2.6. Worksheet Viewing Options
- 4.3. Entering, Editing and Formatting Cell Entries
  - 4.3.1. Working with cell entries [Ref 6: Pg. (42 - 53)]
  - 4.3.2. Speeding up Data Entry [Ref 6: Pg. (46 - 49)]
  - 4.3.3. Editing Data [Ref 6: Pg. (53-56)]
  - 4.3.4. Formatting Data [Ref 6: Pg. (57 - 64)]
  - 4.3.5. Conditional formatting [Ref 6: Pg. (65-69)]
  - 4.3.6. Hiding and showing data [Ref 6: Pg. (69-71)]
  - 4.3.7. Find and Replace [Ref 6: Pg. (77-80)]
- 4.4. Creating Charts and Graphs [Ref 6: Pg. (82 - 119)]
  - 4.4.1. Creating charts & graphs
  - 4.4.2. Formatting Charts & graphs
  - 4.4.3. Exporting charts
  - 4.4.4. Different chart types
- 4.5. Printing, Exporting and Emailing
  - 4.5.1. Printing ranges [Ref 6: Pg. (171 – 180)]
  - 4.5.2. Headers and Footers [Ref 6: Pg. (181 – 184)]
  - 4.5.3. Exporting to other formats [Ref 6: Pg. (184 – 189)]
  - 4.5.4. Emailing Spreadsheets [Ref 6: Pg. (189)]
  - 4.5.5. Digital Signing [Ref 6: Pg. (190)]
- 4.6. Reviewing Spreadsheets
  - 4.6.1. Recording changes [Ref 6: Pg. (296-298)]
  - 4.6.2. Adding comments [Ref 6: Pg. (298 – 300)]
  - 4.6.3. Reviewing changes [Ref 6: Pg. (301-302)]
- 4.7. Working with different Formulae and Functions
  - 4.7.1. Working with formula [Ref 6: Pg. (192-207)]
  - 4.7.2. Understanding functions [Ref 6: Pg. (207-212)]
  - 4.7.3. Finding and fixing errors [Ref 6: Pg. (214-218)]
  - 4.7.4. Different Functions [Ref 6: Pg. (386-431)]
    - 4.7.4.1. Mathematical Functions  
(COUNT, COUNTBLANK, COUNTIF, COUNTIFS, SUM, SUMIF, SUMIFS)
    - 4.7.4.2. Statistical analysis functions (AVERAGE, AVERAGEIF, MAX, MIN, MOD)
    - 4.7.4.3. Date and Time functions (DATE, TODAY, TIME)
    - 4.7.4.4. Logical functions (AND, FALSE, IF, NOT, OR, TRUE)
    - 4.7.4.5. Information functions (ISBLANK, ISNUMBER)
    - 4.7.4.6. Text functions (CONCATENATE, EXACT)
- 4.8. Data Processing using advanced tools
  - 4.8.1. Data Filtering [Ref 6: Pg. (72-75), (329)]
  - 4.8.2. Data Sorting [Ref 6: Pg. (75-77), (328)]
  - 4.8.3. Pivot Table [Ref 6: Pg. (225-245)]
  - 4.8.4. Data Analysis [Ref 6: Pg. (250-268)]
  - 4.8.5. Working with Macro [Ref 6: Pg. (308 – 311)]
- 5. Databases for Processing Data (5 hrs.)
  - 5.1. Introduction to Databases
    - 5.1.1. What is a Database

- 5.1.2.Different Database application software
- 5.2. Get Familiarize with the Working Environment **[Ref 7: Pg. (14-19)]**
- 5.3. Creating a Database **[Ref 7: Pg. (22-32)]**
- 5.4. Working with Tables
  - 5.4.1.Creating tables using GUI **[Ref 7: Pg. (40 - 43)]**
  - 5.4.2.Creating tables using SQL commands **[Ref 7: Pg. (43-48)]**
  - 5.4.3.Working with Relationships **[Ref 7: Pg. (34 - 40), (48-52)]**
  - 5.4.4Entering data into tables **[Ref 7: Pg. (52-57)]**
- 5.5. Working with Forms **[Ref 7: Pg. (62-115)]**
  - 5.5.1.Creating and Designing Forms
  - 5.5.2.Working with Sub Forms
- 5.6. Working with Database Queries using the query design dialog **[Ref 7: Pg. (122-134)]**
- 5.7. Working with Reports **[Ref 7: Pg. (150-167)]**
  - 5.7.1.Creating a Report with Report Builder
  - 5.7.2.Functions in the Report Builder
- 5.8. Mail Merge
  - 5.8.1.Creating mail merge documents **[Ref 7: Pg. (178-185)]**
  - 5.8.2.Label Printing **[Ref 7: Pg. (185-188)]**
  - 5.8.3.Exporting data from Calc **[Ref 7: Pg. (193 - 195)]**
- 6. Presentations for Effective Communication (3 hrs.)
  - 6.1. Introduction to Presentation software
    - 6.1.1.Importance of Electronic Presentation Materials
    - 6.1.2.Design Considerations for Multimedia Presentations
    - 6.1.3.Different Presentation application software
  - 6.2. Getting Familiarize with the Working Environment **[Ref 8: Pg. (13 – 31)]**
    - 6.2.1.Basic file operations
    - 6.2.2.Work space views
    - 6.2.3.Creating a new presentation
  - 6.3. Adding and Formatting Slides, Notes and Handouts
    - 6.3.1.Inserting, Deleting and Hiding Slides **[Ref 8: Pg. (190-199)]**
    - 6.3.2.Adding and Formatting Notes **[Ref 8: Pg. (201-206)]**
    - 6.3.3.Creating Handouts **[Ref 8: Pg. (207-209)]**
  - 6.4. Working with Slide Masters, Styles and Templates
    - 6.4.1.Working with Slide Master **[Ref 8: Pg. (34-46)]**
    - 6.4.2.Working with Styles **[Ref 8: Pg. (47)]**
    - 6.4.3.Working with Templates **[Ref 8: Pg. (47)]**
  - 6.5. Adding and Formatting Text
    - 6.5.1.Working with text boxes **[Ref 8: Pg. (55 – 60)]**
    - 6.5.2.Inserting and formatting text options **[Ref 8: Pg. (60 – 74)]**
    - 6.5.3.Bulleted and Numbered Lists **[Ref 8: Pg. (74 – 79)]**
    - 6.5.4.Tables, Fields and Hyperlinks **[Ref 8: Pg. (79 -85)]**
  - 6.6. Adding and Formatting Pictures
    - 6.6.1.Inserting and formatting pictures **[Ref 8: Pg. (90 - 96)]**
    - 6.6.2.Creating an Image Map **[Ref 8: Pg. (104-105)]**
  - 6.7. Creating, Formatting and managing Graphic Objects
    - 6.7.1.Drawing toolbar **[Ref 8: Pg. (107-112)]**

- 6.7.2. Working with lines and objects [Ref 8: Pg. (112-114)]
- 6.7.3. Grouping, positioning and resizing objects [Ref 8: Pg. (115-118)]
- 6.7.4. Arranging objects [Ref 8: Pg. (126)]
- 6.7.5. Creating, Modifying and Formatting Font Work [Ref 8: Pg. (132-133)]
- 6.8. Inserting Charts and Other OLE Objects
  - 6.8.1. Inserting OLE Objects [Ref 8: Pg. (169 – 172)]
  - 6.8.2. Charts [Ref 8: Pg. (178 – 185)]
  - 6.8.3. Using media files [Ref 8: Pg. (185 – 186)]
  - 6.8.4. Formulas [Ref 8: Pg. (187)]
- 6.9. Managing and Delivering Presentations
  - 6.9.1. Setup Presentation [Ref 8: Pg. (212-216), (227-229)]
  - 6.9.2. Slide Transitions [Ref 8: Pg. (216-219)]
  - 6.9.3. Using Animation Effects [Ref 8: Pg. (133-137), (219-226)]
  - 6.9.4. Creating Interactions [Ref 8: Pg. (226-227)]
- 6.10. Printing, emailing, exporting and saving slide shows [Ref 8: Pg. (232-249)]
  - 6.10.1. Printing Creating Interactions
  - 6.10.2. Exporting to different formats
  - 6.10.3. Emailing
  - 6.10.4. Digital Signing
- 7. Multimedia Content Development (4 hrs.) [Ref 9]
- 7.1. Introduction to Graphic Design
  - 7.1.1. What is Graphic Design
  - 7.1.2. Different Graphic Design application software
- 7.2. Getting Familiarize with the Working Environment [Ref 9: Section 3]
- 7.3. Working with Images [Ref 9: Section 5-Section 6]
- 7.4. Drawing and Painting
  - 7.4.1. Working with selections and selection tools [Ref 9: Section 7 & Section 14.2]
  - 7.4.2. Working with Drawing and Painting Tools [Ref 9: Section 14.3]
  - 7.4.3. Adding and Modifying Text [Ref 9: Section 9]
  - 7.4.4. Creating Paths [Ref 9: Section 7.5]
- 7.5. Working with Transformation Tools [Ref 9: Section 14.4]
- 7.6. Working with Layers [Ref 9: Section 8]
  - 7.6.1. Introduction to Layers
  - 7.6.2. Layer Properties
  - 7.6.3. Layer Modes
  - 7.6.4. Creating New Layers
  - 7.6.5. Grouping Layers
- 7.7. Enhancing Photographs [Ref 9: Section 10]
  - 7.7.1. Improving Composition
  - 7.7.2. Improving Colors
  - 7.7.3. Adjusting Sharpness
  - 7.7.4. Removing Unwanted Objects

**Teaching /Learning Methods:**

You can access all learning materials and this syllabus in the VLE: <http://vle.bit.lk/>, if you are a registered student of the BIT degree program. It is important to participate in learning activities given in the VLE to learn this course.

**Assessment Strategy:**

In the course, case studies/Lab sheets will be introduced, and students have to participate in the learning activities.

The final examination of the course will be held at the end of the semester. The paper consists of 40 MCQs and candidates have to answer all 40 questions within 2 hours.

**References/ Reading Materials:**

- Ref1. What is Open Source?  
<https://opensource.com/resources/what-open-source>
- Ref 2: Oracle VM Virtual Box, User Manual  
<https://www.virtualbox.org/manual/UserManual.html#virt-why-useful>
- Ref3. Installing Ubuntu as Primary Operating System  
<http://ubuntu-manual.org/downloads>
- Ref 4. Using Command Line in Ubuntu  
<https://tutorials.ubuntu.com/tutorial/command-line-for-beginners#0>
- Ref 5. Libre Office Writer Guide 6.0  
<https://documentation.libreoffice.org/assets/Uploads/Documentation/en/WG6.0/WG60-WriterGuideLO.pdf>
- Ref 6. Libre Office Calc Guide: Version 4.1  
<https://documentation.libreoffice.org/assets/Uploads/Documentation/en/CG4.1/CG41-CalcGuideLO.pdf>
- Ref 7. Libre Office Base Handbook ver4.0  
<https://documentation.libreoffice.org/assets/Uploads/Documentation/en/BH4.0/PDF/BH40-BaseHandbook.pdf>
- Ref 8. Libre Office Impress Guide Ver 4.2  
<https://documentation.libreoffice.org/assets/Uploads/Documentation/en/IG4.2/IG42-ImpressGuide.pdf>
- Ref 9. GIMP User Manual 2.10  
<https://docs.gimp.org/2.10/en/>

**Supplementary Reading Materials:**

- Installing Ubuntu from Dual Boot Option  
<https://itsfoss.com/install-ubuntu-dual-boot-mode-windows/>
- Information and Communication Technology, Grade 10, Educational Publications Department
- Information and Communication Technology, Grade 11, Educational Publications Department