1. FREE AND OPEN SOURCE SOFTWARES

Discipline	COMPUTER SCIENCE				
Course Code	UK2DSCCSC100				
Course Title	FREE AND OPEN SOURCE SOFTWARES				
Type of Course	**DSC**				
Semester	II				
Academic Level	1				
Course Details	Credit	Lecture per week	Tutorial per week	Practical per week	Total Hours/Week
	4	3 hours	-	2 hours	5 hours
Pre-requisites	-				
Course Summary	This course is designed to ensure that students understand the incidence and usage of open source software in the industry and also the ethical and social impact leading the students to make precise decisions on software selection based on the usage scenarios.				

Detailed Syllabus:

Module	Unit	Content	Hrs (L+ P)
I	**Introduction**		
	1	Introduction to Open-Source: Open Source, Need and Principles of OSS, Open Standards Requirements for Software, OSS success, Free Software, Examples, Free Vs. Proprietary Software, Free Software Vs. Open-Source Software, Public Domain. Proprietary Vs Open-Source Licensing Model, use of Open- Source Software, FOSS does not mean no cost. The Free Software Foundation and the GNU Project.	**15**
II	**Dynamics of Open-Source Software**		**15**
	2	Initiatives, Principle and methodologies, Software Freedom, Open-Source Software Development, Economics of FOSS: Zero Marginal Cost, Income-generation opportunities, Problems with traditional commercial software, Internationalization	
	Open Source Ecosystem		

	3	Open Source Operating Systems: GNU/Linux, Android, Free BSD, Open Solaris. Open Source Hardware, Virtualization Technologies, Containerization Technologies: Docker, Development tools, IDEs, debuggers, Programming languages, LAMP, Open Source database technologies	
III	**Open Source Projects**		**15**
	4	Introduction to GitHub, interacting with the community on GitHub, Communication and etiquette, testing Open-source code, reporting issues, contributing code. Introduction to Wikipedia, contributing to Wikipedia or contributing to any prominent open source project of students choice	
	Open-Source Ethics & Social Impact		
	5	Open source vs. closed source, Ethics of Open source. Social and Financial impacts of Open source technology, Shared software, Shared source, Open Source in Government, Open Source as a Business Strategy.	
IV	**Licensing**		**15**
	6	Open Source Development Model Licenses and Patents: What Is A License, Important FOSS Licenses (Apache, BSD, PL, LGPL), copyrights and copy lefts, Patent.	
	Basic Linux and open source applications		
	7	GNU/Linux, Android, Mozilla (Firefox), Wikipedia, Drupal, WordPress, GCC, GDB, GitHub, Libre Office. Basic Linux commands, sample Shell scripting programs	
V		**Flexi Module: Not included in End Semester Exams**	**15**
		Study: Understanding the developmental models, licensing, commercial/non-commercial use. (The students must address key questions about the development processes, and the software that is the result of these processes)	

References

1. Kailash Vadera & Bhavyesh Gandhi,"Open-Source Technology", University Science Press, Laxmi Publications, 2009
2. Fadi P. Deek and James A. M. McHugh,"Open-Source Technology and Policy", Cambridge University Press, 2008.
3. Clay Shirky and Michael Cusumano,"Perspectives on Free and Open-Source Software", MIT press.

4. Andrew M. St. Laurent, “Understanding Open Source and Free Software Licensing”,O’Reilly Media.
5. Dan Woods, Gautam Guliani,“Open Source for the Enterprise”, O’Reilly Media

Web Resources

1. http://kernel.org/
2. https://opensource.org/
3. http://www.linuxfoundation.org/
4. http://www.tldp.org/
5. http://www.docker.com
6. https://en.wikipedia.org/
7. https://en.wikipedia.org/wiki/Wikipedia:Contributing_to_Wikipedia

Lab Exercises

Basic linux commands

Course Outcomes

No.	Upon completion of the course the graduate will be able to	Cognitive Level	PSO addressed
CO-1	Differentiate Open Source and Proprietary software	U	PSO-1
CO-2	Explain about open-source software and open-source ecosystem	U	PSO-1
CO-3	Illustrate the role of open-source projects, open-source ethics and its social impact	Ap	PSO-1
CO-4	Articulate the benefits, features, licensing and applications of Open-source technologies	Ap	PSO-1, 3

R-Remember, U-Understand, Ap-Apply, An-Analyse, E-Evaluate, C-Create

Note: 1 or 2 COs/module

Name of the Course: FREE AND OPEN SOURCE SOFTWARES

Credits: 3:0:1 (Lecture: Tutorial: Practical)

CO No.	CO	PO/PSO	Cognitive Level	Knowledge Category	Lecture (L)/ Tutorial (T)	Practical (P)
1	Differentiate Open Source and Proprietary software	PO-6, 7 PSO- 1	U	F, C	L	-

2	Explain about open-source software and open-source ecosystem	PO-6, 7 PSO- 1	U	F, C	L	-
3	Illustrate the role of open-source projects, open-source ethics and its social impact	PO-6, 7, 8 PSO- 1	Ap	F, C	L	-
4	Articulate the benefits, features, licensing and applications of Open-source technologies	PO-4, 5, 6, 7 PSO- 1, 3	Ap	F, C, P	L	P

F-Factual, C- Conceptual, P-Procedural, M-Metacognitive

Mapping of COs with PSOs and POs :

	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PSO1**	**PSO2**	**PSO3**	**PSO 4**
CO 1	-	-	-	-	-	1	2	-	2	-	-	-
CO 2	-	-	-	-	-	2	2	-	2	-	-	-
CO 3	-	-	-	-	-	2	2	3	2	-	-	-
CO 4	-	-	-	1	2	2	2	-	2	-	2	-

Correlation Levels:

Level	**Correlation**
-	Nil
1	Slightly / Low
2	Moderate / Medium
3	Substantial / High

Assessment Rubrics: