INDIAN INSTITUTE OF TECHNOLOGY ROORKEE

NAME OF DEPT./CENTRE: **Electronics and Computer Engineering**

1. Subject Code: **EC - 253** Course Title: **System Software**

2. Contact Hours: **L: 2** **T: 1** **P: 0**

3. Examination Duration (Hrs.): **Theory** 0 | 2 **Practical** 0 | 0

4. Relative Weight: **CWS** 25 **PRS** 0 **MTE** 25 **ETE** 50 **PRE** 0

5. Credits: 0 | 3 6. Semester √ **Autumn** ☐ **Spring** ☐ **Both**

7. Pre-requisite: **EC - 101A / EC - 101B**

8. Subject Area: **DCC**

9. Objective: The objective of the course is to familiarize students with the design and functioning of computer software.

10. Details of the Course:

Sl. No.	Contents	Contact Hours
1.	Introduction to system software, machine architecture, machine level representation of programs, assembly language programming and optimizing program performance.	6
2.	Assemblers, basic function, machine dependent and independent assembler features, assembler design options.	4
3.	Two-pass, one-pass and multi-pass assembler design.	6
4.	Macro-processors, basic functions, machine independent features, nested definitions and calls, design options.	4
5.	General purpose macro-processor design, macro-processing within language translators.	2
6.	Loaders and linkers, basic functions, machine dependent and independent features, linkers, loaders and editors, design options.	3
7.	Relocating loaders and dynamic linking loader designs.	3
	Total	**28**

11. Suggested Books:

Sl. No.	Name of Books / Authors	Year of Publication
1.	Beck, L.L., "System Software", 3rd Ed., Addison Wesley.	1997
2.	Dhamdhere, D.M., "System Programming & Operating Systems", 2nd Ed., Tata McGraw-Hill.	1999
3.	Abel, P. "IBM PC Assembly Language and Programming", 3rd Ed., Prentice-Hall of India.	2000
4.	Bryant, R.E. and O'Hallaron, D.R., "Computer Systems: A Programmer's Perspective", Prentice-Hall of India.	2001