Code	Subject Title	Cr. Hrs	Semester
PHY-409	**COMMUNICATION ELECTRONICS-I (THEORY)**	**3**	**VII**
Year	Discipline		
4	**Physics**		

Course Outlines:

Amplitude modulation principles: Modulation, AM, FM, pulse modulation, power relationships, assignable frequency spectrum, band selection.

AM transmitters: Circuits, high level modulation, double modulation, AM with pulse width modulation, low level modulation.

AM radio receivers and transmitters: Superheterodyne receiver, double conversion receivers, receiver circuits: IF Amplifiers, AM detectors, automatic gain control, audio amplifiers, squelch, receiver schematics, loudspeakers, AM stereo.

Frequency Modulation Principles: Modulated wave, FM radio frequency band, direct and indirect frequency modulation (Phase Modulation), carrier phase in the frequency-modulated wave,FM detectors, stereo FM, FM receiver.

Television: Scanning principles, deflection systems, video camera tubes, video picture, signal, TV receiver Front end, color TV receivers.

Books Recommended:

1. *Electronic Communication* by Kennedy George, McGraw Hill, 1992.
2. *Electronic Fundamentals* by Thomas L. Floyd, 2nd. Ed., Maxwell-Macmillan, New York, 1991.
3. *Essential of Communication Electronics* by M. Slurzberg and W. Osterfield, National Book Foundation, Islamabad, 1991.
4. *Introduction to Linear Electrical Circuits and Electronics* by M. C. Kelly and B. Nichols, John Wiley, New York, 1988.
5. *Electronic Circuits Handbook* by Michael Tooley, BPB Publications, New Delhi, 1994.
6. *Introduction to Electronic Design* by F. H. Mitchell Jr. and Mitchell Sr., Prentice Hall, London, 1988.
7. Digital Principles and Applications by A. P. Malvino and D. P. Leach, 4th Ed., McGraw Hill, New York, 1986.
8. Perspectives in communication by U.R. Rao, Pub. World Scientific, 1987.
9. Digital Electronics By C. E. Strangio, Prentice Hall, London, Latest Edition
10. Digital Computer Electronics By Malvino A. P. and Brown J.A., McGraw Hill School Publishing Company, 1993.
11. Electronics for Today by Tom Duncan, OxfordUniversity Press.