VASAVI COLLEGE OF ENGINEERING (AUTONOMOUS)
DEPARTMENT OF PHYSICS

Introduction to Optoelectronic Devices

Open elective Course (One Credit)

w.e.f academic year 2018-2019

Instruction:1 Hour/week	SEE Marks: 50	**Course Code: OE480PH**
Credits: 01	CIE Marks: 30	
Duration of SEE: 2 Hrs	Duration of CIE: 1 Hrs	

UNIT-I

Electron-hole pair generation and recombination process.

Photodiodes: Working and construction of Photodiode-photodiode characteristics- PN Photodiode. PIN Photodiode-Avalanche Photodiode-Photodiode Quantum Efficiency-advantages and applications of photodiodes

Semiconductor diode laser -construction-working principle- advantages and applications of diode lasers.

UNIT-II

Light emitting diode (LED)- working-construction and characteristics of LED- emission of colour and band gap of semiconductor-semiconductor materials for LED fabrication, brief introduction to OLEDS.

Solar Cell- Photovoltaic effect- solar cell I-V characteristics-series resistance-fill factor, efficiency- materials used for solar cells-solar panels- applications of solar cells.

SUGGESTED BOOKS:

1. S. W. S. McKeever, Thermoluminescence of Solids, Cambridge University Press, 1988
2. Ben G Streetman and Sany Kumar Banerjee, Solid state electronic devices, 7th edition, Pearson, 2016
3. Jasprit Singh, Semiconductor devices: Basic principles, Wiley, Delhi, 2014
4. M.N. Avadhanulu, Kshirsagar and TVS Arun Murthy, A textbook of Engineering Physics, 11th Edition, S. Chand, 2018.

Head
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