**Program: B.Sc Electronics and Communication System** Course title: **Elective-II: 8051Microcontroller & Its Applications** Subject Code: 5ELT4 Year: III Semester: V Credits: 5 Hrs/Week: 5

**Unit-I Introduction & 8051 architecture:**

Microprocessors and microcontrollers- Z80 and the 8051- a microcontroller survey, development-systems for microcontrollers-8051 micro controller hardware-input/output pins- ports- ports and circuits- external memory-counters and timers- serial data i/o- interrupts.

**Unit-II 8051 Instruction set & Programming:**

Addressing modes- external data moves- code memory read- PUSH and POP opcodes-data exchanges- Byte-level logical operations- bit-level logical operations- rotate and swap operations-Flags- incrementing and decrementing- addition- subtraction- multiplication and division- decimal-arithmetic-Jump and call program range- jumps- calls and subroutines-interrupts and returns.

**Unit-III 8051 microcontroller design:**

Microcontroller specifications - 8051 micro controller design - testing the design - timing subroutines -look up tables for 8051- serial data transmission.

**Unit-IV Serial data communication & Introduction to other microcontrollers and buses:**

Network configuration - 8051 data communication modes – I2C - RS232 - ARM - PIC microcontrollers – CAN – USB - SPI & PCI etc families for buses.

**Unit-V Applications:**

Matrix Keyboard – LCD - pulse measurements-D/A and A/D conversions - multiple interrupts-RTC through DS1307-EEPROM.

**Books for Study:**

1. The 8051 Microcontroller - Kenneth J. Ayala - 3rd Editon-2005 – Delmar Learning.

**Book for Reference:**

1. The 8051 Microcontroller and Embedded Systems - Mazidi & Mazidi (PHI)