**For AICTE Diploma Courses** Date 14/06/2020

NIT POLYTECHNIC , Nashik D-1 Teaching Plan (Academic Year: 2019-20)

Name of the Institute: **NIT POLYTECHNIC, Nashik.** Name of the Subject: Embedded System **(ESY)**

Institute Code No. **1479** Subject Code: **22532**

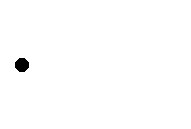
Name of the Program: Electronics and Telecommunication **(EJ)** Name of the Faculty: Mrs.A.G.Bhagwat

Semester: V (I-Scheme) (EJ-6G) Probable / Actual Hrs Available: 48

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| **Total Hrs./ma rks** | **Title/Details** | **Allocated Hrs. in Curriculu m** | **Date of Commencing Topic** | **Date of Completion of Topic** | **Teaching Method/ Media** | **Remarks** |
|  | **Unit-1: Introduction, block diagram of Embedded System.** |  | | | | |
|  | Block diagram and description of architectures of Processors:a)Von Neumann b)Harvard  RISC & CISC | 01 | 16/07/2020 | 16/07/2020 |  |  |
|  | Feature of of Micro controller 89C51 and application |  | | | Online |  |
| **(08)/12** | teaching on  zoom, |
| Feature of of Micro controller PICand application | 01 | 17/06/2020 | 17/06/2020 |  |
|  |  |  |  | google class  etc PPT & |
| Feature of of Micro-controller AVRand application | 01 | 18/06/2020 | 18/06/2020 |  |
|  | Feature of of Micro-controller ARM and application | 01 | 19/06/2020 | 19/06/2020 | Videos |  |
|  | Characteristic of embedded system:Performance,Power | 01 | 20/06/2020 | 20/06/2020 |  |  |
|  | consumption |  |  |  |  |

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|  | unit cost,Size,Flexibility,time to prototype | 01 | 24/06/2020 | 24/06/2020 |  |  |
| Time to market,maintainability ,correctness and safety. | 01 | 25/06/2020 | 25/06/2020 |  |
| Classification of Embedded System: Small scale, medium  scale, | 01 | 26/06/2020 | 26/06/2020 |  |
|  | sophisticated, stand-alone, reactive/real time (soft and hard real time), | 01 | 27/06/2020 | 27/06/2020 |  |  |
|  | **UNIT-2 Programming with Embedded C.** | | | |  |  |
|  | Arithmetic operation using embedded c | 01 | 01/07/2020 | 01/07/2020 |  |  |
|  | logical operation using embedded c | 01 | 02/07/2020 | 02/07/2020 |  |  |
|  | . Data transfer with memory and port, decision control and | 01 | 03/07/2020 | 03/07/2020 |  |  |
|  | looping. |  |  |  |
|  | Timer/Counter programing using embedded C | 01 | 04/07/2020 | 04/07/2020 |  |  |
|  | for given micro-controller. |  |  | Online |
|  | Timer/Counter programing using embedded C | 01 | 08/07/2020 | 08/07/2020 | teaching on |  |
|  | for given micro-controller. |  |  | zoom, |
| **12/16** | Timer/Counter programing using embedded C  for given micro-controller. | 01 | 09/07/2020 | 09/07/2020 | google class etc PPT & |  |
| Serial communication program using embedded C for given | 01 | 10/07/2020 | 10/07/2020 |  |
|  | micro-controller. |  |  | Videos |
|  | Serial communication program using embedded C for given | 01 | 11/07/2020 | 11/07/2020 |  |  |
|  | micro-controller. |  |  |  |
|  | Serial communication program using embedded C for given | 01 | 15/07/2020 | 15/07/2020 |  |  |
|  | micro-controller. |  |  |  |
|  | Interrupt control program for given micro-controller | 01 | 16/07/2020 | 16/07/2020 |  |  |
|  | Interrupt control program for given micro-controller | 01 | 17/07/2020 | 17/07/2020 |  |  |
|  | Interrupt control program for given micro-controller | 01 | 18/07/2020 | 18/07/2020 |  |  |
| **8/12** | **Unit-3: Communication Protocols** |  |  |  |  |  |

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|  | Modes of data communication:serial and parallel | 01 | 22/07/2020 | 22/07/2020 | Online teaching on zoom, google class etc PPT & Videos |  |
| Synchronous and asynchronous | 01 | 23/07/2020 | 23/07/2020 |  |
| Serial communication std:RS232 | 01 | 24/07/2020 | 24/07/2020 |  |
| Max232 as bidirectional level converter | 01 | 25/07/2020 | 25/07/2020 |  |
| Communication protocols: I2C,CAN, USB | 01 | 29/07/2020 | 29/07/2020 |  |
| Serial peripheral interface(SPI)Synchronous serial(SSP) | 01 | 30/07/2020 | 30/07/2020 |  |
|  | Parallel communication Protocol PCI,PCIX | 01 | 31/07/2020 | 31/07/2020 |  |
|  | Features of advanced Serial Protocol: IrDA, Blutooth,  Zigbee | 01 | 01/08/2020 | 01/08/2020 |  |
| **12/18** | **Unit 4: I/O interfacing** |  | | | Online teaching on zoom, google class etc PPT & Videos |  |
| Interface various and special devices to the micro -controler  89C51/AVR | 01 | 05/08/2020 | 05/08/2020 |  |
| Interface o/p devices : LED,LCD, Relays | 01 | 06/08/2020 | 06/08/2020 |  |
| Interface o/p devices : LED,LCD, Relays | 01 | 07/08/2020 | 07/08/2020 |  |
| Interface o/p devices : LED,LCD, Relays | 01 | 08/08/2020 | 08/08/2020 |  |
| Interfacing 7 segment display, and multiplex 7segment  displar matrix keyboard and its programming with ‘C’. | 01 | 12/08/2020 | 12/08/2020 |  |
| Interfacing 7 segment display, and multiplex 7segment  display matrix keyboard and its programming with ‘C’. | 01 | 13/08/2020 | 13/08/2020 |  |
| nterfacing 7 segment display, and multiplex 7segment  displar matrix keyboard and its programming with ‘C’. | 01 | 14/08/2020 | 14/08/2020 |  |
| I/P devices: KEY, Matrix keyboard | 01 | 19/08/2020 | 19/08/2020 |  |
| . I/P devices: KEY, Matrix keyboard |  | 20/08/2020 | 20/08/2020 |  |



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|  | I.Interfacing Stepper Motor and its programming with ‘C’.Interfacing DC Motor and its programming with ‘C’. | 01 | 21/08/2020 | 21/08/2020 |  |  |
|  | .Interfacing Stepper Motor and its programming with  ‘C’.Interfacing DC Motor and its programming with ‘C’. | 01 | 22/08/2020 | 22/08/2020 |  |  |
|  | Interfacing of Temperature sensor (LM35) to control  temperature. | 01 | 26/08/2020 | 26/08/2020 |  |  |
| **08/12** | **Unit-5 Real time operating system** | 01 | 27/08/2020 | 27/08/2020 | Online teaching on zoom, google class etc PPT & Videos |  |
| Operating system: general and Real time operating system. |  |  |
| Characteristics of RTOS: Consistency,Reliability  scalability,Performance,predictability. | 01 | 28/08/2020 | 28/08/2020 |  |
| Function of RTOS:Inter task commn and  multitasking | 01 | 29/08/2020 | 29/08/2020 |  |
| Function of RTOS: multitasking | 01 | 02/09/2020 | 02/09/2020 |  |
| Scheduling: Scheduling Algorithm |  |  |
| Resource allocation and interrupt handling | 01 | 03/09/2020 | 03/09/2020 |  |
| Features of RTOS:Watchdog timer,semaphore | 04/09/2020 | 04/09/2020 |  |
| Deadlock: i)Reason of occurrence, Handling of deadlock,  detection ,Prevention,ignoring | 01 | 05/09/2020 | 05/09/2020 |  |

Mrs.A.G.Bhagwat **Mrs.S.K.Khaire**

Subject Teacher HOD (E&TC)