**VII SEMESTER ELECTRONICS and COMMUNICATION ENGINEERING ( T )**

1. Page 1 Name of Subject 13.702 Optical Fibre Communication (T) changed to 13.702 Optical Communication (T)

2. Page 29, 30 Syllabus of 13.706.3 Embedded Systems (AT) replaced with modified contents as follows:

   **13.706.3 EMBEDDED SYSTEMS (AT ) (Elective IV)**

   **Teaching Scheme:** 2(L) - 1(T) - 0(P)  \( \text{Credits: 3} \)

   **Course Objectives:**
   - To have a thorough understanding of the basic structure and design of an Embedded System.
   - To study the different ways of communicating with I/O devices and standard I/O interfaces.
   - To study the basics of RTOS for Embedded systems.
   - To study the programming concepts of Embedded Systems.

   **Module – I**
   Introduction to Embedded Systems – Components of an embedded system hardware – Software embedded into the system
   Embedded Processors - CPU architecture of PIC and ARM processors
   Design and Development life cycle model - Embedded system design process – Challenges in Embedded system design.

   **Module – II**
   Memory - memory technologies – DRAM, SRAM, EPROM, EEPROM – Memory Organizations
   I/O Devices – Timer / Counter, Real time clock, ADC and DAC, Keyboards and Displays
   DMA – DMA Controllers
   Interrupts and Exceptions – Interrupt Controller
   Serial Communication Standards and Devices - UART and HDLC, SCI, SPI - Parallel Port Devices - I2C Bus, CAN Bus, USB Bus, ISA Bus, PCI and PCI-X Bus.

   **Module – III**
   LINUX OS – Basic Features – File system, Disk partitioning, Software structure.

   **Module – IV**
   Concepts of Embedded programming – Components for Embedded programs – Assembling, Linking and Loading – Compilation Techniques – Program Optimization
   Software Implementation, Testing, Validation, Debugging and Emulation

   **References:**
Internal Continuous Assessment (Maximum Marks-50)

50% - Tests (minimum 2)
30% - Assignments (minimum 2) such as homework, problem solving, quiz, literature survey, seminar, term-project, problems based on MATLAB/any other software packages covering the syllabus etc.
20% - Regularity in the class

University Examination Pattern:

Examination duration: 3 hours Maximum Total Marks: 100
The question paper shall consist of 2 parts.

Part A (20 marks) - Ten Short answer questions of 2 marks each. All questions are compulsory. There should be at least two questions from each module and not more than three questions from any module.
Part B (80 Marks) - Candidates have to answer one full question out of the two from each module. Each question carries 20 marks.

Note: Question paper should contain minimum 20% problems, derivations and proof.

Course Outcome:
At the end of the course, students will have
- Thorough understanding of the basic structure and design of an Embedded System.
- Knowledge on the different ways of communicating with I/O devices and standard I/O interfaces.
- Knowledge on the basics of RTOS for Embedded systems and on programming concepts of Embedded Systems.

3. Page 32 Course outcome changed as

Course Outcome:
After successful completion of the course, students will be able to
- Understand the concepts of Low power microelectronics, low voltage technologies logic styles and circuits.
- Design chips used for battery-powered systems and high-performance circuits.

VII SEMESTER AERONAUTICAL ENGINEERING (S)

1. Page 1. Teaching schedule and credit of 13.703 Combustion Technology (S) corrected as 13.703 Combustion Technology (S) 3(C) 2(L) 1(T) 0(P)

2. Page 1. Teaching schedule and credit of 13.707 Elective III corrected as 13.707 Elective III 3(C) 2(L) 1(T) 0(P)

3. Page 1. Total Teaching schedule and credit corrected as 29(C) 18(L) 7(T) 4(P)

4. Page 6, 14, 17, 20, 22, 24, 26, 29 and 31- Teaching schedule and credit corrected as 3(C) 2(L) 1(T) 0(P)

5. Page 24- Course No corrected as 13.707.5

6. Page 33- Course Name corrected as 13.708 Avionics Lab
**VII SEMESTER BIOTECHNOLOGY & BIOCHEMICAL ENGINEERING (B)**

1. Page 1- List of 13.705 Elective II – Course No and Name are rearranged as

<table>
<thead>
<tr>
<th>13.705 Elective II</th>
</tr>
</thead>
<tbody>
<tr>
<td>13.705.1 Biostatistics (B)</td>
</tr>
<tr>
<td>13.705.2 Ethics and Intellectual Property Rights (B)</td>
</tr>
<tr>
<td>13.705.3 Bioprocess Plant safety and Hazard Assessment (B)</td>
</tr>
<tr>
<td>13.705.4 Biocatalysts and Catalysis (B)</td>
</tr>
<tr>
<td>13.705.5 Computational Fluid Dynamics (B)</td>
</tr>
<tr>
<td>13.705.6 Drug Design, Development and Manufacture (B)</td>
</tr>
</tbody>
</table>

**VII SEMESTER APPLIED ELECTRONICS and INSTRUMENTATION ENGINEERING (A)**

1. Page 29, 30 Syllabus of 13.706.3 Embedded Systems (AT) replaced with modified contents as follows

<table>
<thead>
<tr>
<th>13.706.3 EMBEDDED SYSTEMS (AT ) (Elective IV)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teaching Scheme: 2(L) - 1(T) - 0(P)</td>
</tr>
<tr>
<td>Credits: 3</td>
</tr>
<tr>
<td>Course Objectives:</td>
</tr>
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</tr>
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<tr>
<td>• To study the programming concepts of Embedded Systems.</td>
</tr>
</tbody>
</table>

**Module – I**

Introduction to Embedded Systems– Components of an embedded system hardware– Software embedded into the system
Embedded Processors - CPU architecture of PIC and ARM processors
Design and Development life cycle model - Embedded system design process – Challenges in Embedded system design.

**Module – II**

Memory - memory technologies – DRAM, SRAM, EPROM, EEPROM – Memory Organizations
I/O Devices – Timer / Counter, Real time clock, ADC and DAC, Keyboards and Displays
DMA – DMA Controllers
Interrupts and Exceptions– Interrupt Controller
Serial Communication Standards and Devices - UART and HDLC, SCI, SPI - Parallel Port Devices - I2C Bus, CAN Bus, USB Bus, ISA Bus, PCI and PCI-X Bus.

**Module – III**

LINUX OS – Basic Features – File system, Disk partitioning, Software structure.

**Module – IV**
Concepts of Embedded programming – Components for Embedded programs – Assembling, Linking and Loading – Compilation Techniques – Program Optimization
Software Implementation, Testing, Validation, Debugging and Emulation

References:

Internal Continuous Assessment (Maximum Marks-50)
50% - Tests (minimum 2)
30% - Assignments (minimum 2) such as home work, problem solving, quiz, literature survey, seminar, term-project, problems based on MATLAB / any other software packages covering the syllabus etc.
20% - Regularity in the class

University Examination Pattern:
Examination duration: 3 hours Maximum Total Marks: 100
The question paper shall consist of 2 parts.
Part A (20 marks) - Ten Short answer questions of 2 marks each. All questions are compulsory. There should be at least two questions from each module and not more than three questions from any module.
Part B (80 Marks) - Candidates have to answer one full question out of the two from each module. Each question carries 20 marks.
Note: Question paper should contain minimum 20% problems, derivations and proof.

Course Outcome:
At the end of the course, students will have
• Thorough understanding of the basic structure and design of an Embedded System.
• Knowledge on the different ways of communicating with I/O devices and standard I/O interfaces.
• Knowledge on the basics of RTOS for Embedded systems and on programming concepts of Embedded Systems.

VII SEMESTER  MECHANICAL - STREAM - PRODUCTION ENGINEERING

1. Page No. 56 Syllabus of 13.708 CIM LAB (P) replaced with modified contents as follows:

13 .708 CIM LAB (P)

Teaching Scheme: 0(L) - 0(T) - 2(P)  Credits: 2
Course Objective:
To provide knowledge of CNC machines and its application in manufacturing.
List of Experiments:
1. Manual part programming for CNC machines using standard G codes and M codes
2. Study and exercise on CNC Milling Machine for
   a. Profile milling
   b. Surface milling
c. Drilling and Reaming

d. Pocket milling

3. Study and exercise on CNC Lathe for
   a. Plane turning
   b. Taper turning
   c. Thread cutting
   d. Form turning

4. Programming with PLC
5. Product printing using rapid prototyping
6. Measurement with CMM
7. Robot programming for pick and place

Internal Continuous Assessment (Maximum Marks-50)
40% - Test
40% - Class work and Record
20% - Regularity in the class

University Examination Pattern:
Examination duration: 3 hours Maximum Total Marks: 100
Questions based on the list of experiments prescribed.
80% - Procedure, calculations if any, working, accuracy/result.
20% - Viva voce
Candidate shall submit the certified fair record for endorsement by the external examiner.

Course Outcome:
At the end of the course, the students will be able to:
• Develop and implement part programme on CNC Machines for various operations
• Use CAM software for NC code generation
• Use Coordinate Measuring Machine (CMM) for Measurement of Flat, Cylindrical and Spherical surfaces
• Program a Pick and Place robot
• Make simple components using Rapid prototyping (RP) Machine.

2. Page No 57 corrected as Page No. 58