

CURRICULUM

FIRST SEMESTER

| Course Code | Type | Course | L – T – P | Credits |
|-------------|------|---|----------------|-----------|
| 19MA605 | FC | Computational Linear Algebra, Differential Equations and Probability Theory | 3 – 1 – 0 | 4 |
| 19EM601 | FC | Digital Signal Controllers | 3 – 0 – 2 | 4 |
| 19EM602 | FC | Dynamics of Linear & Nonlinear Systems | 2 – 0 – 2 | 3 |
| 19EM611 | SC | Modelling and Identification of Dynamic Systems | 3 – 0 – 2 | 4 |
| 19EM612 | SC | Embedded Control System | 3 – 0 – 2 | 4 |
| 19EM613 | SC | Process Control and Automation | 3 – 0 – 2 | 4 |
| 19HU601 | HU | Amrita Values Program* | | P/F |
| 19HU602 | HU | Career Competency I * | | P/F |
| | | | Credits | 23 |

* Non-credit course

SECOND SEMESTER

| Course Code | Type | Course | L – T – P | Credits |
|-------------|------|-------------------------------------|----------------|-----------|
| 19EM614 | SC | Digital Control for Automation | 3 – 0 – 2 | 4 |
| 19EM615 | SC | Optimal and Adaptive Control | 3 – 0 – 2 | 4 |
| 19EM616 | SC | Smart Sensing and Signal Processing | 3 – 0 – 2 | 4 |
| | E | Elective -I | 3 – 0 – 0 | 3 |
| | E | Elective -II | 3 – 0 – 0 | 3 |
| 19EM603 | FC | Application Development Lab | 1 – 0 – 2 | 2 |
| 19HU603 | HU | Career Competency II | 0-0-1 | 1 |
| 19RM600 | SC | Research Methodology | 2-0-0 | 2 |
| | | | Credits | 23 |

THIRD SEMESTER

| Course Code | Type | Course | L – T – P | Credits |
|-------------|------|--------------|----------------|-----------|
| 19RM798 | P | Dissertation | | 10 |
| | | | Credits | 10 |

FOURTH SEMESTER

| Course Code | Type | Course | L – T – P | Credits |
|-------------|------|--------------|----------------|-----------|
| 19RM799 | P | Dissertation | | 10 |
| | | | Credits | 10 |

Total credits: 66

LIST OF COURSES
Foundation Core (FC)

| Course Code | Course | L – T – P | Credits |
|-------------|---|-----------|---------|
| 19MA605 | Computational Linear Algebra, Differential Equations and Probability Theory | 3 – 1 – 0 | 4 |
| 19EM601 | Dynamics of Linear and Nonlinear Systems | 2 – 0 – 2 | 3 |
| 19EM602 | Digital Signal Controllers | 3 – 0 – 2 | 4 |
| 19EM603 | Application Development Lab | 1 – 0 – 2 | 2 |

Subject Core (SC)

| Course Code | Course | L – T – P | Credits |
|-------------|---|-----------|---------|
| 19EM611 | Modelling and Identification of Dynamic Systems | 3 – 0 – 2 | 4 |
| 19EM612 | Embedded Control System | 3 – 0 – 2 | 4 |
| 19EM613 | Process Control and Automation | 3 – 0 – 2 | 4 |
| 19EM614 | Digital Control for Automation | 3 – 0 – 2 | 4 |
| 19EM615 | Optimal and Adaptive Control | 3 – 0 – 2 | 4 |
| 19EM616 | Smart Sensing and Signal Processing | 3 – 0 – 2 | 4 |

Electives

(Subjects from areas including Advanced Control Systems, Embedded Systems, Automation, Instrumentation, Robotics, Guidance and Control)

| Course Code | Course | L – T – P | Credits |
|-------------|--|-----------|---------|
| 19EM701 | Intelligent Control Systems | 3 – 0 – 0 | 3 |
| 19EM702 | Robotics and Control | 3 – 0 – 0 | 3 |
| 19EM703 | Flight Dynamics and Control | 3 – 0 – 0 | 3 |
| 19EM704 | Virtual Instrumentation | 3 – 0 – 0 | 3 |
| 19EM705 | Logic and Distributed Control Systems | 3 – 0 – 0 | 3 |
| 19EM706 | Robust Control | 3 – 0 – 0 | 3 |
| 19EM707 | Advanced Digital Signal Controllers and Applications | 3 – 0 – 0 | 3 |
| 19EM708 | Estimation Theory and Stochastic Control | 3 – 0 – 0 | 3 |
| 19EM709 | Multi Agent Systems | 3 – 0 – 0 | 3 |
| 19EM710 | Power Plant Instrumentation | 3 – 0 – 0 | 3 |
| 19EM711 | Electrical Drives and Control | 3 – 0 – 0 | 3 |
| 19EM712 | Modern Optimization Techniques | 3 – 0 – 0 | 3 |
| 19EM713 | Guidance and Control of Autonomous Systems | 3 – 0 – 0 | 3 |
| 19EM714 | Biomedical Instrumentation | 3 – 0 – 0 | 3 |
| 19EM715 | Smart Electrical Network & Intelligent Communication Systems | 3 – 0 – 0 | 3 |
| 19EM716 | Variable Structure and Sliding Mode Control | 3 – 0 – 0 | 3 |
| 19EM717 | Cloud Computing | 3 – 0 – 0 | 3 |
| 19EM718 | Cyber Physical Systems | 3 – 0 – 0 | 3 |

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|---------|---------------------------------------|-----------|---|
| 19EM719 | Automotive Control System Design | 3 – 0 – 0 | 3 |
| 19EM720 | Biological Control Systems | 3 – 0 – 0 | 3 |
| 19EM721 | Nonlinear System Analysis and Control | 3 – 0 – 0 | 3 |
| 19EM722 | Advanced Digital Signal Processing | 3 – 0 – 0 | 3 |
| 19EM723 | Robotics for Industrial Automation | 3 – 0 – 0 | 3 |
| 19EM724 | Artificial Intelligence in Automation | 3 – 0 – 0 | 3 |

*Any of the elective subjects offered in any semester in any department may also be permitted with the concurrence of the department.

Project Work

| Course Code | Course | L – T – P | Credits |
|--------------------|---------------|------------------|----------------|
| 19EM798 | Dissertation | | 10 |
| 19EM799 | Dissertation | | 10 |