**National Institute of Technology Srinagar**

**Proposal for M. Tech. in Electrical Power & Energy Systems**

# Course Structure

| Teaching Scheme | | | | Contact Hrs. Per week | | | Exam. Duration | | Relative Weightage (%) (Hrs.) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. No. | Course Code | Course Title | No. of Credits | L | T | P | Th | Pr | CW | PR | MTE | ETE |
| **1st YEAR** | | **I SEMESTER (AUTUMN)** | | | | | | | | | | |
| 1. | EEM-101 | Advanced Power System Analysis | 4 | 3 | 1 | - | 3 | - | 20 | - | 30 | 50 |
| 2. | EEM-102 | Power Quality Problems & Solutions | 3 | 3 | - | - | 3 | - | 20 | - | 30 | 50 |
| 3. | EEM-103 | Control of Electrical Energy Systems | 3 | 3 | - | - | 3 | - | 20 | | 30 | 50 |
| 4. | MTM-101 | Advanced Mathematics | 3 | 3 | - | - | 3 | - | 20 | - | 30 | 50 |
| 5. | EEM- 104 | Power System Simulation Lab.-I | 2 | - | - | 4 | - | 1 | - | 25 | 25 | 50 |
| 6. | EEM-114-117 | Elective-I | 3 | 3 | - | - | 3 | - | 20 | - | 30 | 50 |
| **Sub Total** | | | **18** | | | | | | | | | |

| **II SEMESTER (SPRING)** | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1. | EEM-105 | Power System Dynamics & Stability | 3 | 3 | - | - | 3 | - | 20 | - | 30 | 50 |
| 2. | EEM-106 | Power System Optimization | 3 | 3 | - | - | 3 | - | 20 | - | 30 | 50 |
| 3. | EEM-107 | Stand-Alone Energy Systems | 3 | 3 | - | - | 3 | - | 20 | - | 30 | 50 |
| 4. | EEM-108 | HVDC Systems | 3 | 3 | | - | 3 | - | 20 | - | 30 | 50 |
| 5. | EEM- 109 | Power System Lab.-II | 2 | - | - | 4 | - | 1 | - | 25 | 25 | 50 |
| 6. | EEM-118-120 & ECEM-159 | Elective-II | 3 | 3 | - | - | 3 | - | 20 | - | 30 | 50 |
| Sub Total | | | 17 | | | | | | | | | |

| Teaching Scheme | | | | Contact Hrs. Per week | | | Exam. Duration | | Relative Weightage (%) (Hrs.) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. No | Course Code | Course Title | No. of Credits | L | T | P | Th | Pr | CW | PR | MTE | ETE |
| **2nd YEAR** | | **III SEMESTER (AUTUMN)** | | | | | | | | | | |
| 1. | EEM-110 | Power System Restructuring & Deregulation | 3 | 3 | 1 | - | 3 | - | 20 | - | 30 | 50 |
| 4. | EEM-111 | Seminar | 1 | - | - | - | - | - | - | - | - | - |
| 5. | EEM-112 | Minor Project | 3 | - | - | - | - | - | - | - | - | - |
| 2. | EEM-121 -122 | Elective -III | 3 | 3 | - | - | 3 | - | 20 | - | 30 | 50 |
| 3. | EEM-123-124 | Elective-IV | 3 | - | - | 4 | - | 1 | - | 25 | 25 | 50 |
| **Sub Total** | | | **13** | | | | | | | | | |

| **IV SEMESTER (SPRING)** | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1. | EEM-113 | Dissertation | 12 | - | - | - | - | - | - | - | - | - |
| **Sub Total** | | | **12** | | | | | | | | | |
| **Total** | | | **60** | | | | | | | | | |

**Abbreviations:**

L – Lecture,

T – Tutorial, P – Practical,

Th – Theory

Exam., Pr – Practical Exam.

CW – Class Work Assessment,

PR – Practical Work

Assessment,

MTE – Mid -Term Exams.,

ETE – End-Term Exam.

## ELECTIVES:

| Teaching Scheme | | | Contact Hrs.Per week | | | | Exam. on | | Relative Weightage (%) (Hrs.) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S.No. | Course Code | Course Title | No. of Credits | L | T | P | Th | Pr | CW | PR | MTE | ETE |
| **1st YEAR** | | **I SEMESTER (AUTUMN)** | | | | | | | | | | |
| | | | **ELECTIVE** | | | | | | | | | |
| 1 | EEM-114 | Advanced Instrumentation Technology | 3 | 3 | - | - | 3 | - | 20 | - | 30 | 50 |
| 2. | EEM-115 | SCADA Systems | 3 | 3 | - | - | 3 | - | 20 | - | 30 | 50 |
| 3. | EEM-116 | Energy Management & Energy Audit | 3 | 3 | - | - | 3 | - | 20 | - | 30 | 50 |
| 4. | EEM-117 | Modeling & Simulation of Power System Components | 3 | 3 | - | - | 3 | - | 20 | - | 30 | 50 |

| **1st YEAR** | | **II SEMESTER (SPRING)** | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | **ELECTIVE** | | | | | | | | | |
| 1. | ECEM- 159 | Embedded Systems & Real Time Applications | 3 | 3 | - | - | 3 | - | 20 | - | 30 | 50 |
| 2. | EEM-118 | Selected Topics in Power & Energy Systems | 3 | 2 | - | 2 | 3 | 1 | 10 | 20 | 20 | 50 |
| 3. | EEM-119 | Power System Reliability | 3 | 2 | - | 2 | 3 | 1 | 10 | 20 | 20 | 50 |
| 4. | EEM-120 | Neural Network & Fuzzy Systems | 3 | 3 | - | - | 3 | - | 20 | - | 30 | 50 |

| **2ND YEAR** | | **III SEMESTER (AUTUMN)** | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | **ELECTIVE-III** | | | | | | | | | |
| 1. | EEM-121 | Flexible AC Transmission Systems | 3 | 3 | - | - | 3 | - | 20 | - | 30 | 50 |
| 2. | EEM-122 | Advanced Power System Protection | 3 | 3 | - | - | 3 | - | 20 | - | 30 | 50 |
| | | | **ELECTIVE-IV** | | | | | | | | | |
| 1 | EEM-123 | Intelligent Control of Electrical Energy Systems | 3 | 3 | - | | 3 | - | 20 | - | 30 | 50 |
| 2 | EEM-124 | Energy System Planning | 3 | 3 | - | - | 3 | - | 20 | - | 30 | 50 |