



JSPM UNIVERSITY PUNE

Recognized by UGC u/s 2 (f) of UGC Act 1956 and enacted by the
State Government of Maharashtra - JSPM University Act, 2022 (Mah.IV of 2023)

JSPM University Pune
Faculty of Science and Technology
School of Civil and Environmental Science



NEP aligned Curriculum Structure

For

M.Tech (Structural Engineering)

(Effective from AY: 2024-25)



JSPM University Pune

FACULTY OF SCIENCE & TECHNOLOGY

SCHOOL OF CIVIL AND ENVIRONMENTAL SCIENCES

FIRST YEAR MASTER OF TECHNOLOGY
(STRUCTURAL ENGINEERING)

COURSE STRUCTURE
(NEP 2020 Aligned)

W. E. F

2024 - 2025

RELEASE DATE

01/07/2024

REVISION NO.

0.0 (NEP)

SEMESTER I (LEVEL 6.5)

| TYPE | CODE | COURSE NAME | TEACHING SCHEME | | | | EXAMINATION SCHEME AND MARKS | | | | | | | | | | TOTAL | CREDITS |
|--------------|--------------|---|-----------------|---|---|----|--|---------------|------------------------|---|---|-------------------------------------|---|--|-----|-----|-------|---------|
| | | | Hours / Week | | | | THEORY (Equal Weightage for CIE and ESE) | | | | PRACTICAL (Equal Weightage for CIE and ESE) | | | ORAL (Equal Weightage for CIE and ESE) | | | | |
| | | | L | T | P | EL | CONTINUOUS INSEMESTER EVALUATION (100 Marks) | | | END SEMESTER EXAMINATION (100 / 50 Marks) | CONTINUOUS INSEMESTER EVALUATION (50 Marks) | END SEMESTER EXAMINATION (50 Marks) | CONTINUOUS INSEMESTER EVALUATION (50 Marks) | END SEMESTER EXAMINATION (50 Marks) | | | | |
| | | | | | | | T1 (30 Marks) | T2 (30 Marks) | Assignments (40 Marks) | | | | | | | | | |
| PSMC | 230GMAM02_01 | Advanced Numerical Methods | 2 | 1 | - | - | 30 | 30 | 40 | 100 | - | - | - | - | 100 | 3 | | |
| PSBC | 231GSEM01_01 | Advanced Analysis of Structures | 2 | - | - | - | 30 | 30 | 40 | 50 | - | - | - | - | 50 | 2 | | |
| PCC | 231GSEM02_01 | Structural Dynamics | 2 | - | - | 2 | 30 | 30 | 40 | 100 | - | - | - | - | 100 | 2.5 | | |
| PCC | 231GSEM03_01 | Advanced Design of Reinforced Concrete Structures | 3 | - | - | - | 30 | 30 | 40 | 100 | - | - | - | - | 100 | 2.5 | | |
| MMC | - | Multidisciplinary Minor Course- I | 1 | - | 2 | - | - | - | - | - | 50 | 50 | 50 | 50 | 100 | 3 | | |
| SEC | 230GCSM26_01 | Python Programming for Engineers | 2 | - | 2 | - | - | - | - | - | 50 | 50 | 50 | 50 | 100 | 2 | | |
| VSC (HSMC) | 230IDCB01_01 | Design Thinking and Creativity | 1 | - | - | 2 | - | - | - | - | 50 | 50 | 50 | 50 | 100 | 3 | | |
| AEC (HSMC) | 230UENM01_01 | Communicative English for Professionals | 1 | - | 2 | - | 30 | 30 | 40 | 50 | - | - | 50 | 50 | 50 | 1.5 | | |
| RMC | 230IRMM01_01 | Research Methodology | 2 | - | - | - | 30 | 30 | 40 | 50 | - | - | - | - | 50 | 2 | | |
| LC | 230GSEM23_01 | Structural Engineering Lab | - | - | 2 | - | - | - | - | - | 50 | 50 | - | - | 50 | 2 | | |
| TOTAL | | | 16 | 1 | 8 | 4 | | | | | - | 50 | 50 | - | - | 50 | 1 | |
| | | | | | | | | | | | | | | | 750 | 22 | | |



L-Lecture
Format No.: JSPMUni/ACAD/001

T-Tutorial
Rev. No.:0.0


P-Practical Session (Laboratory)
Rev. Date:01/07/2024



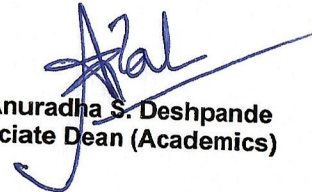
EL-Experiential Learning
Page 1 of 2

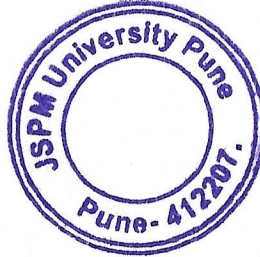
| Sem | Multidisciplinary Minor Course (MMC) | |
|------------------|--------------------------------------|-----------------------------|
| I (MMC - I) | Course Code | 230GRAM24_01 |
| | Course Name | Sensors and Automation |
| II (MMC - II) | Course Code | 230GETM16_02 |
| | Course Name | IoT Basics and Applications |



Mr. Sharanbasappa Kori
 Programme Coordinator, MTech-STR


Dr. M. Nithya
 Director (I/C), School of Civil and Environmental
 Sciences


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 Dean, Faculty of Science and Technology


Dr. Anuradha S. Deshpande
 Associate Dean (Academics)




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SEMESTER II

| TYPE | CODE | COURSE NAME | TEACHING SCHEME | | | | EXAMINATION SCHEME AND MARKS | | | | | | | | | | C R E D I T S | |
|-----------------|--------------|---|-----------------|---|---|----|--|---------------------|-----------------------------------|---|--|--|--|--|-----|-----|---------------------------------|-----------------------|
| | | | Hours / Week | | | | THEORY (Equal Weightage for CIE and ESE) | | | | PRACTICAL (Equal Weightage for CIE and ESE) | | | ORAL (Equal Weightage for CIE and ESE) | | | | T O T A L |
| | | | L | T | P | EL | CONTINUOUS INSEMESTER EVALUATION (100 Marks) | | | END SEMESTER EXAMINATI ON (100 / 50 Marks) | CONTINUO US INSEMEST ER EVALUATI ON (50 Marks) | END SEMESTER EXAMINATI ON (50 Marks) | CONTINUO US INSEMEST ER EVALUATI ON (50 Marks) | END SEMESTER EXAMINATI ON (50 Marks) | | | | |
| | | | | | | | T1 (30 Marks) | T2 (30 Marks) | Assign- ments (40 Marks) | | | | | | | | | |
| PCC | 230GSEM05_02 | Finite Element Methods | 2 | 1 | - | - | 30 | 30 | 40 | 100 | - | - | - | - | 100 | 3 | | |
| PCC | 230GSEM06_02 | Earthquake Resistant Design of Structures | 2 | - | - | 2 | 30 | 30 | 40 | 100 | - | - | - | - | 100 | 2.5 | | |
| PCC | 230GSEM07_02 | Prestressed Concrete Structures | 3 | - | - | - | 30 | 30 | 40 | 100 | - | - | - | - | 100 | 3 | | |
| MMC | - | Multidisciplinary Minor Course- II | 1 | - | 2 | - | - | - | - | - | - | - | - | - | 100 | 3 | | |
| SEC | 230GSEM19_02 | Building Information Modelling | 2 | - | 2 | - | - | - | - | - | 50 | 50 | 50 | 50 | 100 | 2 | | |
| VSC (HSMC) | 230IINB02_02 | Innovation | 1 | - | - | 2 | - | - | - | - | 50 | 50 | 50 | 50 | 100 | 3 | | |
| AEC (HSMC) | 230UENM02_02 | Business Communication | 1 | - | 2 | - | 30 | 30 | 40 | 50 | - | - | 50 | 50 | 50 | 1.5 | | |
| RMC | 230IRMM02_02 | Research Design and Techniques | 2 | - | - | - | 30 | 30 | 40 | 50 | - | - | - | - | 50 | 2 | | |
| LC | 230GSEM24_02 | Structural Analysis lab | - | - | 2 | - | - | - | - | - | 50 | 50 | - | - | 50 | 2 | | |
| IITP/FP/ CEP | 230GSEM25_02 | Internship / Field Project / Community Engagement Programme | 4 to 6 weeks | | | | - | - | - | - | - | - | - | 50 | 50 | 50 | 1 | |
| TOTAL | | | 14 | 1 | 8 | 4 | | | | | | | | | 750 | 22 | | |



Note: A Postgraduate Diploma will be awarded if a student exits after first year.
For Exit at the end of first year the student must complete: (Total credits = 8)

- a) An internship / OJT of 8 - 10 weeks (4 credits)
- b) Additional Course 1 (4 credits) (Vocational Skill Course (VSC) / Skill Enhancement Course (SEC))

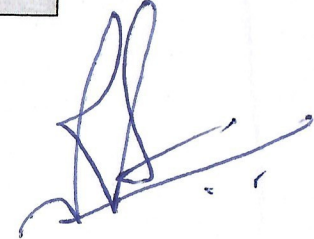
| Sem | Multidisciplinary Minor Course (MMC) | |
|------------------|--------------------------------------|-----------------------------|
| I (MMC - I) | Course Code | 230GRAM24_01 |
| | Course Name | Sensors and Automation |
| II (MMC - II) | Course Code | 230GETM16_02 |
| | Course Name | IoT Basics and Applications |



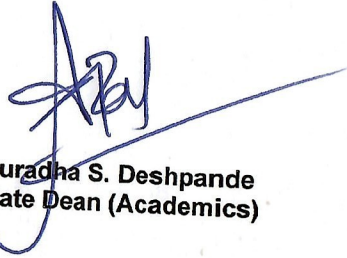
Mr. Sharanbasappa Kori
Programme Coordinator, MTech-STR



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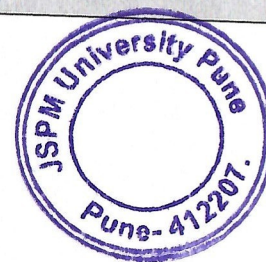
01/07/2024

REVISION NO.

0.0 (NEP)

SEMESTER III (LEVEL 7)

| TYPE | CODE | COURSE NAME | TEACHING SCHEME | | | | EXAMINATION SCHEME AND MARKS | | | | | | | | | | TOTAL | CREDITS |
|-----------------|--------------|---|-----------------|---|----|----|---|------------------|---------------------------|--|--|--|---|--|-----|---|-------|---------|
| | | | Hours / Week | | | | THEORY (Equal Weightage for CIE and ESE) | | | | PRACTICAL (Equal Weightage for CIE and ESE) | | ORAL (Equal Weightage for CIE and ESE) | | | | | |
| | | | L | T | P | EL | CONTINUOUS INSEMESTER EVALUATION (100 Marks) | | | END SEMESTER EXAMINATION (100 / 50 marks) | CONTINUOUS INSEMESTER EVALUATION (50marks) | END SEMESTER EXAMINATION (50 marks) | CONTINUOUS INSEMESTER EVALUATION (50marks) | END SEMESTER EXAMINATION (50 marks) | | | | |
| | | | | | | | T1 (30 Marks) | T2 (30 Marks) | Assignments (40 Marks) | | | | | | | | | |
| PEC | - | Program Elective-I / MOOCs | 3 | - | - | - | 30 | 30 | 40 | 100 | - | - | - | - | 100 | 3 | | |
| PEC | - | Program Elective-II / MOOCs | 3 | - | - | - | 30 | 30 | 40 | 100 | - | - | - | - | 100 | 3 | | |
| IOC | - | Interdisciplinary Open Course -I | 2 | - | - | - | 30 | 30 | 40 | 100 | - | - | - | - | 100 | 3 | | |
| IOC | - | Interdisciplinary Open Course -II | 2 | - | - | - | 30 | 30 | 40 | 100 | - | - | - | - | 100 | 2 | | |
| VEC | 230USYB01_03 | Behavioral Science and Ethics | 2 | - | - | - | 30 | 30 | 40 | 100 | - | - | - | - | 100 | 2 | | |
| SLC | 230GSEM26_03 | Seminar | - | - | 4 | - | - | - | - | 50 | - | - | - | - | 50 | 2 | | |
| IITP/F P/CEP | 230GSEM27_03 | Internship / Field Project / Community Engagement Programme | - | - | 12 | - | - | - | - | - | - | - | 100 | 100 | 100 | 2 | | |
| TOTAL | | | 12 | 0 | 16 | 0 | | | | | | | | | | | 650 | 20 |



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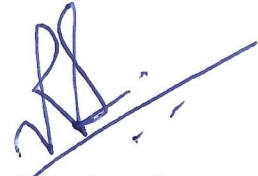
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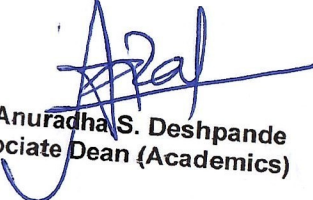
| Sem. | Interdisciplinary Open Course (IOC) | | |
|------|-------------------------------------|---|------------------------------------|
| | Specialization | Management (IOC - I) | Computer Science (IOC - II) |
| III | Course Code | 230VBCB04_03 | 230GCSM31_03 |
| | Course Name | Basics of Accounting | Artificial Intelligence for All |
| III | Course Code | 230VMSM11_03 | 230GCSM32_03 |
| | Course Name | Fundamentals of Financial Management | Machine Learning in Practice |
| III | Course Code | 230VMSM08_03 | 230GCSM33_03 |
| | Course Name | Start up and Entrepreneurship Development | Introduction to Python Programming |

| Sem. | Programme Elective Course (PEC) | | | |
|----------------|---------------------------------|--|---|--|
| | Specialization | Structural Engineering | | |
| III (PEC - I) | Course Code | 230GSEM08_03 | 230GSEM09_03 | 230GSEM10_03 |
| | Course Name | Theory of Plates and Shells | Theory of Elasticity and Plasticity | Advanced Design of Steel Structures |
| III (PEC - II) | Course Code | 230GSEM11_03 | 230GSEM12_03 | 230GSEM13_03 |
| | Course Name | Structural Health Monitoring and Retrofitting | Soil Structure Interaction | Stability Analysis of Slopes, Dams and Embankments |
| IV (PEC - III) | Course Code | 230GSEM14_04 | 230GSEM15_04 | 230GSEM16_04 |
| | Course Name | Micro-Structure and Innovations in Structural Concrete | Advanced Concrete Technology and Applications | Prefabricated Structures |
| IV (PEC - IV) | Course Code | 230GSEM17_04 | 230GSEM18_04 | 230GSEM21_04 |
| | Course Name | Design of Substructure | Design of Tall Buildings | Design of Steel Concrete Composite Structures |



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2024-2025

RELEASE DATE

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REVISION NO.

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SEMESTER IV (LEVEL 7)

| TYPE | CODE | COURSE NAME | TEACHING SCHEME | | | | EXAMINATION SCHEME AND MARKS | | | | | | | | TOTAL | CREDITS |
|--------------|--------------|-----------------------------------|-----------------|---|----|----|---|------------------|---------------------------|--|---|---|---|--|-------|---------|
| | | | Hours / Week | | | | THEORY (Equal Weightage for CIE and ESE) | | | PRACTICAL (Equal Weightage for CIE and ESE) | | ORAL (Equal Weightage for CIE and ESE) | | | | |
| | | | L | T | P | EL | CONTINUOUS INSEMESTER EVALUATION (100 Marks) | | | END SEMESTER EXAMINATION (100 / 50 marks) | CONTINUOUS INSEMESTER EVALUATION (50marks) | END SEMESTER EXAMINATION (50 marks) | CONTINUOUS INSEMESTER EVALUATION (50marks) | END SEMESTER EXAMINATION (50 marks) | | |
| | | | | | | | T1 (30 Marks) | T2 (30 Marks) | Assignments (40 Marks) | | | | | | | |
| PEC | - | Program Elective-III/ MOOCs | 3 | - | - | - | 30 | 30 | 40 | 100 | - | - | - | - | 100 | 3 |
| PEC | - | Program Elective-IV/ MOOCs | 3 | - | - | - | 30 | 30 | 40 | 100 | - | - | - | - | 100 | 3 |
| PROJ | 230GSEM28_04 | Project / Internship with Project | - | - | 24 | - | - | - | - | - | - | - | - | - | 100 | 3 |
| TOTAL | | | 6 | 0 | 24 | 0 | - | - | - | - | - | - | 200 | 200 | 200 | 12 |
| MLC# | - | Audit Course - I | 1 | - | - | - | - | - | - | 50 | - | - | - | - | 400 | 18 |
| | | | | | | | | | | | | | | 50 | 1 | |

