



INDIAN INSTITUTE OF TECHNOLOGY (INDIAN SCHOOL OF MINES) DHANBAD
OFFICE OF THE DEAN (ACADEMIC)

No. IITISM/DAC/840

23.10.2024

NOTIFICATION

NEW POSTGRADUATE PROGRAM TEMPLATES (AS NEP 2020)

The new PG program templates, as applicable from the batch admitted in MS 2024-25, are enclosed for the reference of all.

Kindly note that in addition to the given credits, some non-credit units are also required to be necessarily earned to successfully complete the program {notification dated 18.09.2024 enclosed for reference. Office of Dean (Students' Welfare) will provide the details in this regard in due course/shortly}.

For the PG first year, the department wise list of courses is also enclosed for reference.


Dean (Academic)

Copy to: Director / Dy. Director
All Deans / Assoc. Deans / HoDs
Registrar
DR (Acad) / AR (UG) / AR (PG) / AR (SW)
All PG Students

UPDATED PG PROGRAM TEMPLATES AS PER NEP 2020 (EFFECTIVE FROM THE BATCH ADMITTED IN MS 2024-25)

M.Tech. Program

| Semester | DC [3-1-0] | DE [3-0-0] | RM [3-0-0] | DP [0-0-3] | Thesis | Credits |
|--------------|---------------|---------------|---------------|---------------|--------|------------------|
| 1st | 3 | 2 | | 3 | | 22.5 |
| 2nd | 3 | 1 | 1 | 3 | | 22.5 |
| 3rd | | | | | 1 | 20 |
| 4th | | | | | 1 | 20 |
| Course Count | 6 | 3 | 1 | 6 | 2 | Total 85 Credits |
| Credit Count | 24 | 9 | 3 | 9 | 40 | |

M.Sc.Tech. Program

| Semester | DC [1st Sem: 3 DC of 3-1-0 and 2 DC of 3-0-0; 2nd & 4th sem all DC of 3-0-0; 3rd Sem: 2 DC of 3-1-0 and 3 DC of 3-0-0; 5th sem: 1 DC of 3-1-0 and 1 DC of 3-0-0] | DE [3-0-0] | RM [3-0-0] | DP [0-0-2] | Thesis | Vocational Training / Excursion / Field Visit [S/X] | Internship (Non-Credit Unit) | Credits |
|--------------|---|---------------|---------------|---------------|--------|---|------------------------------|-------------------|
| 1st | 5 | | | 3 | | | | 21 |
| 2nd | 5 | | | 3 | | 1 | | 21 |
| 3rd | 5 | | | 3 | | | | 20 |
| 4th | 5 | | | 2 | | 1 | | 20 |
| 5th | 2 | 2 | 1 | | | | 1 | 21 |
| 6th | | | | | 1 | | | 20 |
| Course Count | 22 | 2 | 1 | 11 | 1 | 2 | 1 | Total 123 Credits |
| Credit Count | 72 | 6 | 3 | 11 | 20 | 6 | 5 | |

M.Sc. Program

| Semester | DC [Atleast three DCs should be of 3-1-0 in 1st semester and two each in other semesters] | DE [3-0-0] | RM [3-0-0] | DP [0-0-3] | Thesis | Credits |
|--------------|--|---------------|---------------|---------------|--------|-------------------------|
| 1st | 5 | | | 2 | | 21 |
| 2nd | 4 | 1 | | 2 | | 20 |
| 3rd | 2 | 2 | 1 | 2 | | 20 |
| 4th | | | | | 1 | 20 |
| Course Count | 11 | 3 | 1 | 6 | 1 | Total 81 Credits |
| Credit Count | 40 | 9 | 3 | 9 | 20 | |

MA Program

| Semester | DC [Atleast three DCs should be of 3-1-0 in 1st semester and two in other semesters] | DE [3-0-0] | RM [3-0-0] | DP [0-0-3/ 0-0-2] | Thesis | Credits |
|--------------|---|---------------|---------------|----------------------|--------|-------------------------|
| 1st | 4 | | 1 | 2 | | 20.5 |
| 2nd | 4 | 1 | | 1 | | 19.5 |
| 3rd | 3 | 2 | | 2 | | 21 |
| 4th | | | | | 1 | 20 |
| Course Count | 11 | 3 | 1 | 5 | 1 | Total 81 Credits |
| Credit Count | 42 | 9 | 3 | 7 | 20 | |

MBA Program

| Semester | DC [Atleast three DCs should be of 3-1-0 in 1st semester and two in 2nd sem] | DE [3-0-0] | DP [0-0-3] in 1st and [0-0-2] in 2nd sem | Term Paper (S/X) | Credits |
|--------------|---|---------------|---|------------------|---------------------------|
| 1st | 5 | 0 | 1 | | 19.5 |
| 2nd | 6 | 0 | 1 | | 21 |
| 3rd | | 4 | | 1 | 20 |
| 4th | | 4 | | 1 | 20 |
| Course Count | 11 | 8 | 2 | 2 | Total 80.5 Credits |
| Credit Count | 38 | 24 | 2.5 | 16 | |

MBA (BA) Program

| Semester | DC [Atleast four DCs should be of 3-1-0 in 1st semester and one in 2nd sem] | DE [3-0-0] | DP [0-0-3] in 1st and [0-0-2] in 2nd sem | Term Paper (S/X) | Credits |
|--------------|--|---------------|---|------------------|---------------------------|
| 1st | 5 | | 1 | | 20.5 |
| 2nd | 6 | | 1 | | 20 |
| 3rd | | 4 | | 1 | 20 |
| 4th | | 4 | | 1 | 20 |
| Course Count | 11 | 8 | 2 | 2 | Total 80.5 Credits |
| Credit Count | 38 | 24 | 2.5 | 16 | |

INDIAN INSTITUTE OF TECHNOLOGY (INDIAN SCHOOL OF MINES) DHANBAD
OFFICE OF THE DEAN (ACADEMIC)

No. IITISM/DAC/825

18th September, 2024

NOTIFICATION

REVISION IN NON CREDIT UNITS

The approved revision in Non Credit Units (in NEP regime), as recommended by the DSW Office, is enclosed for the information of all.


Dean (Academic)

Copy to:

1. Director/Deputy Director
2. Registrar
3. All Deans/ Associate Deans/ FIC (Automation)
4. All HODs
5. DR (Acad)/ AR (PG)/ AR(UG)/ AR(SW)/ SPO

Subject: Proposal for Non-credit Units to be implemented w.e.f. MS 2024-25

The following proposed is placed before the Senate to give recommendations for the implementation of changes in line with NEP 2020 on the system of Non-Credit Units to be implemented from MS 2024-25. The following are the details:

Non-Credit Unit & Minimum Units required for each program:

| Sl.no | Program | Discipline (2 units per semester) | NCC/NSS/NSO/CCS/Yoga (2 units per semester for 1 st two years) Sl. No. 1-5 to be assessed during even semesters(2 nd & 4 th) only & Sl.no. 6-12 to be assessed during odd semester (1 st & 3 rd) only Under CCS 101 & CCS 102 | Community Outreach/Community Services/Sports/Student Club Activities/Cultural Activities/NVCTI Activities (2 units per semester for 1 st two years) Sl. No. 1-5 to be assessed during even semesters(2 nd & 4 th) only & Sl.no. 6-12 to be assessed during odd semester (1 st & 3 rd) only | Other CCA or recognition in Inter IIT / Inter University / State / National / International events (during entire period) * | Maximum non-credit units that can be earned | Minimum non-credit units to be earned for the successful completion of the program [C(50 %)+D (at least 2 units) + E(at least 2 units)+F(Optional Or Add on)]= H |
|-------|------------------------------|-----------------------------------|---|--|---|---|---|
| A | B | C | D | E | F | G | H |
| 1 | B.Tech. | 16 | 4 | 4 | 4 | 28 | 20 |
| 2 | B.Tech. with Minor | 16 | 4 | 4 | 4 | 28 | 20 |
| 3 | Double Major | 20 | 4 | 4 | 4 | 32 | 24 |
| 4 | Dual Degree (Category A/B/C) | 20 | 4 | 4 | 4 | 32 | 24 |
| 5 | Int. M.Tech. | 20 | 4 | 4 | 4 | 32 | 24 |
| 6 | M.Tech. | 8 | 4 | 4 | 4 | 20 | 12 |
| | M.Sc. Tech. | 12 | 4 | 4 | 4 | 24 | 16 |
| 8 | M.Sc. | 8 | 4 | 4 | 4 | 20 | 12 |
| 9 | MBA | 8 | 4 | 4 | 4 | 20 | 12 |
| 10 | MBA (BA) | 8 | 4 | 4 | 4 | 20 | 12 |
| 11 | MA | 8 | 4 | 4 | 4 | 20 | 12 |
| 12 | Ph.D. (Full Time) | 2 per sem. | 4 | 4 | 4 | 12 + 2 per sem. | 40% |

* For participation in Inter IIT / Inter University / State / National / International events, 2 units will be credited.

*** For each indiscipline negative 1 unit minimum & maximum up to 4 unit depending upon severity (Discipline grading may be decided by the Office of DSW) will be awarded*

**** Min discipline unit to be decided e.g. 50 % of the total discipline units if 16 then at least 8 and so on.*

#in the event, if any one shortfalls of minimum non-credit units, a make-up test may be conducted under CCS or special programme at the end of courses if required

M.Sc.Tech (Applied Geology)

| Semester I | | | | |
|-------------------------|--------------|----------------|---|--------------------|
| Course Type | L-T-P | Credits | Name of the Course offered | Course Code |
| DC 1 | 3 1 0 | 4 | Mineralogy | NGLC501 |
| DC 2 | 3 1 0 | 4 | Applied Geochemistry | NGLC502 |
| DC 3 | 3 1 0 | 4 | Solid Earth Geophysics | NGPC514 |
| DC 4 | 3 0 0 | 3 | Methods of Structural Geology | NGLC503 |
| DC 5 | 3 0 0 | 3 | Applied Sedimentology | NGLC504 |
| DP 1 | 0 0 2 | 1 | Mineralogy and Geochemistry Practical | NGLC505 |
| DP 2 | 0 0 2 | 1 | Methods of Structural Geology Practical | NGLC506 |
| DP 3 | 0 0 2 | 1 | Sedimentology Practical | NGLC507 |
| Total Credits 21 | | | | |

| Semester II | | | | |
|--|--------------|----------------|--|--------------------|
| Course Type | L-T-P | Credits | Name of the Course to be offered | Course Code |
| DC 6 | 3 0 0 | 3 | Igneous Petrology | NGLC521 |
| DC 7 | 3 0 0 | 3 | Metamorphic Petrology | NGLC522 |
| DC 8 | 3 0 0 | 3 | Petroleum Geology | NGLC520 |
| DC 9 | 3 0 0 | 3 | Programming in MATLAB | NGLC523 |
| DC 10 | 3 0 0 | 3 | Coal Geology | NGLC515 |
| DP 4 | 0 0 2 | 1 | Igneous Petrology Practical | NGLC524 |
| DP 5 | 0 0 2 | 1 | Metamorphic Petrology Practical | NGLC525 |
| DP 6 | 0 0 2 | 1 | Coal Geology and Petroleum Geology Practical | NGLC526 |
| Vocational Training / Field Visit / Excursion etc. | S/ X | 2.5 | Sedimentary Field Training | NGLC527 |
| Total Credits 20.5 | | | | |

Department of Applied Geophysics

M.Sc.Tech (Applied Geophysics)

| Semester I | | | | |
|-------------------------|-------|---------|--|-------------|
| Course Type | L-T-P | Credits | Name of the Course offered | Course Code |
| DC 1 | 3 1 0 | 4 | Geophysical Methods | NGPC513 |
| DC 2 | 3 0 0 | 3 | Mathematical Functional Analysis | NGPC516 |
| DC 3 | 3 1 0 | 4 | Solid Earth Geophysics | NGPC514 |
| DC 4 | 3 0 0 | 3 | Physical and Structural Geology | NGLC202 |
| DC 5 | 3 1 0 | 4 | Remote Sensing Principles | NGPC515 |
| DP 1 | 0 0 2 | 1 | Remote Sensing Principles Practical | NGPC517 |
| DP 2 | 0 0 2 | 1 | Mathematical Functional Analysis Practical | NGPC518 |
| DP 3 | 0 0 2 | 1 | Geophysical Methods Practical | NGPC519 |
| Total Credits 21 | | | | |

| Semester II | | | | |
|--|---------------------------|---------|--|-------------|
| Course Type | L-T-P | Credits | Name of the Course to be offered | Course Code |
| DC 6 | 3 0 0 | 3 | Gravity Method | NGPC520 |
| DC 7 | 3 0 0 | 3 | Earthquake Seismology | NGPC521 |
| DC 8 | 3 0 0 | 3 | Geoelectrical Methods | NGPC522 |
| DC 9 | 3 0 0 | 3 | Seismic Data Acquisition | NGPC523 |
| DC 10 | 3 0 0 | 3 | Economic Geology & Indian Mineral Deposits | NGPC543 |
| DP 1 | 0 0 2 | 1 | Seismic Data Acquisition Practical | NGPC524 |
| DP 2 | 0 0 2 | 1 | Geoelectrical Method Practical | NGPC525 |
| DP 3 | 0 0 2 | 1 | Earthquake Seismology Practical | NGPC526 |
| Vocational Training / Field Visit / Excursion etc. | Non-contact(Letter Grade) | 2.5 | Vocational Training / Field Visit / Excursion etc. | NGPC544 |
| Total Credits 20.5 | | | | |

M.Tech (Earthquake Science and Engineering)

| Semester I | | | | |
|---------------------------|-------|---------|------------------------------------|-------------|
| Course Type | L-T-P | Credits | Name of the Course offered | Course Code |
| DC 1 | 3 1 0 | 4 | Seismology | NGPC501 |
| DC 2 | 3 1 0 | 4 | Geotechnical Modelling | NGPC502 |
| DC 3 | 3 1 0 | 4 | Computational Seismology | NGPC503 |
| DE 1 | 3 0 0 | 3 | Hydrology | NGPD506 |
| DE 2 | 3 0 0 | 3 | Seismic Hazard Zonation | NGPD505 |
| DP 1 | 0 0 3 | 1.5 | Geotechnical Modelling Practical | NGPC504 |
| DP 2 | 0 0 3 | 1.5 | Seismology Practical | NGPC505 |
| DP 3 | 0 0 3 | 1.5 | Computational Seismology Practical | NGPC506 |
| Total Credits 22.5 | | | | |

| Semester II | | | | |
|---------------------------|-------|---------|--|-------------|
| Course Type | L-T-P | Credits | Name of the Course to be offered | Course Code |
| DC 4 | 3 1 0 | 4 | Remote Sensing: Principles and Data Acquisition System | NGPC507 |
| DC 5 | 3 1 0 | 4 | Advanced Numerical Methods | NGPC508 |
| DC 6 | 3 1 0 | 4 | Earthquake Statistics and Hazard | NGPC509 |
| DE 3 | 3 0 0 | 3 | | |
| RM | 3 0 0 | 3 | Research Methodology | NGPC595 |
| DP 4 | 0 0 3 | 1.5 | Remote Sensing: Principles and Data Acquisition System Practical | NGPC510 |
| DP 5 | 0 0 3 | 1.5 | Advanced Numerical Methods Practical | NGPC511 |
| DP 6 | 0 0 3 | 1.5 | Earthquake Statistics and Hazard Practical | NGPC512 |
| Total Credits 22.5 | | | | |

Department of Chemical Engineering

M.Tech (Chemical Engg.)

Semester I

| Course Type | L-T-P | Credits | Name of the Course offered | Course Code |
|---------------------------|-------|---------|--|-------------|
| DC 1 | 3 1 0 | 4 | Advanced Transport Phenomena | NCHC501 |
| DC 2 | 3 1 0 | 4 | Advanced Chemical Engineering Thermodynamics | NCHC502 |
| DC 3 | 3 1 0 | 4 | Computational Techniques in Chemical Engineering | NCHC503 |
| DE 1 | 3 0 0 | 3 | | |
| DE 2 | 3 0 0 | 3 | | |
| DP 1 | 0 0 3 | 1.5 | Computational Techniques Lab | NCHC504 |
| DP 2 | 0 0 3 | 1.5 | Advanced Process Simulation Lab | NCHC505 |
| DP 3 | 0 0 3 | 1.5 | Instrumental Methods of Analysis | NCHC506 |
| Total Credits 22.5 | | | | |

Semester II

| Course Type | L-T-P | Credits | Name of the Course to be offered | Course Code |
|---------------------------|-------|---------|--|-------------|
| DC 4 | 3 1 0 | 4 | Advanced Chemical Reaction Engineering | NCHC507 |
| DC 5 | 3 1 0 | 4 | Advanced Mass transfer | NCHC508 |
| DC 6 | 3 1 0 | 4 | Advanced Process Control | NCHC509 |
| DE 3 | 3 0 0 | 3 | | |
| RM | 3 0 0 | 3 | | |
| DP 4 | 0 0 3 | 1.5 | Advanced Processes Lab | NCHC510 |
| DP 5 | 0 0 3 | 1.5 | Advanced Chemical Engineering Lab | NCHC511 |
| DP 6 | 0 0 3 | 1.5 | Term Paper and Presentation | NCHC512 |
| Total Credits 25.5 | | | | |

Department of Chemistry and Chemical Biology

M.Sc. (Chemistry)

| Semester I | | | | |
|-------------------------|-------|---------|--------------------------------------|-------------|
| Course Type | L-T-P | Credits | Name of the Course offered | Course Code |
| DC 1 | 3 1 0 | 4 | Physical Organic Chemistry | NCYC511 |
| DC 2 | 3 1 0 | 4 | Quantum Chemistry | NCYC510 |
| DC 3 | 3 1 0 | 4 | Group Theory | NCYC512 |
| DC 4 | 3 0 0 | 3 | Main Group Chemistry | NCYC514 |
| DC 5 | 3 0 0 | 3 | Application of Spectroscopic Methods | NCYC513 |
| DP 1 | 0 0 3 | 1.5 | Organic Chemistry Lab – I | NCYC516 |
| DP 2 | 0 0 3 | 1.5 | Inorganic Chemistry Lab | NCYC515 |
| Total Credits 21 | | | | |

| Semester II | | | | |
|-------------------------|-------|---------|----------------------------------|-------------|
| Course Type | L-T-P | Credits | Name of the Course to be offered | Course Code |
| DC 6 | 3 1 0 | 4 | Transition Metal Chemistry | NCYC519 |
| DC 7 | 3 1 0 | 4 | Molecular Spectroscopy | NCYC520 |
| DC 8 | 3 0 0 | 3 | Methods in Organic Synthesis | NCYC518 |
| DC 9 | 3 0 0 | 3 | Kinetics and Thermodynamics | NCYC517 |
| DE 1 | 3 0 0 | 3 | | |
| DP 3 | 0 0 3 | 1.5 | Physical Chemistry lab-I | NCYC521 |
| DP 4 | 0 0 3 | 1.5 | Analytical Chemistry lab | NCYC522 |
| Total Credits 20 | | | | |

M.Tech (Pharmaceutical Science and Engineering)

| Semester I | | | | |
|---------------------------|-------|---------|--|-------------|
| Course Type | L-T-P | Credits | Name of the Course offered | Course Code |
| DC 1 | 3 1 0 | 4 | Basic of Pharmacology | NCYC501 |
| DC 2 | 3 1 0 | 4 | Unit Operations for Pharmaceutics | NCHC525 |
| DC 3 | 3 1 0 | 4 | Formulation & Drug Delivery Technology | NCYC502 |
| DE 1 | 3 0 0 | 3 | | |
| DE 2 | 3 0 0 | 3 | | |
| DP 1 | 0 0 3 | 1.5 | Process Chemistry Lab | NCYC503 |
| DP 2 | 0 0 3 | 1.5 | Instrumental Method of Analysis Lab | NCYC504 |
| DP 3 | 0 0 3 | 1.5 | Chemical Biology Lab | NCYC505 |
| Total Credits 22.5 | | | | |

| Semester II | | | | |
|---------------------------|-------|---------|--|-------------|
| Course Type | L-T-P | Credits | Name of the Course to be offered | Course Code |
| DC 4 | 3 1 0 | 4 | Reaction Engineering | NCHC514 |
| DC 5 | 3 1 0 | 4 | Computer aided drug design | NCYC506 |
| DC 6 | 3 1 0 | 4 | Clinical trials and Regulatory affairs | NCYC507 |
| DE 3 | 3 0 0 | 3 | | |
| RM | 3 0 0 | 3 | Research Methodology | NCYC595 |
| DP 4 | 0 0 3 | 1.5 | Pharmaceutical documentation lab | NCYC508 |
| DP 5 | 0 0 3 | 1.5 | Chemical Engineering Lab | NCHC515 |
| DP 6 | 0 0 3 | 1.5 | Formulation/Manufacturing Lab | NCYC509 |
| Total Credits 22.5 | | | | |

Department of Civil Engineering

M.Tech (Civil)

Semester I

| Course Type | L-T-P | Credits | Name of the Course offered | Course Code |
|---------------------------|-------|---------|--|-------------|
| DC 1 | 3 1 0 | 4 | Numerical Methods in Civil Engg | NCEC503 |
| DC 2 | 3 1 0 | 4 | Mechanics of Deformable Solids | NCEC501 |
| DC 3 | 3 1 0 | 4 | Mechanics of Geomaterials | NCEC502 |
| DE 1 | 3 0 0 | 3 | | |
| DE 2 | 3 0 0 | 3 | | |
| DP 1 | 0 0 3 | 1.5 | Computational Laboratory-I | NCEC504 |
| DP 2 | 0 0 3 | 1.5 | Civil Engineering Model Development Laboratory | NCEC505 |
| DP 3 | 0 0 3 | 1.5 | Term Project-I | NCEC506 |
| Total Credits 22.5 | | | | |

Semester II

| Course Type | L-T-P | Credits | Name of the Course to be offered | Course Code |
|---------------------------|-------|---------|---|-------------|
| DC 4 | 3 1 0 | 4 | Transportation System, Design, and Management | NCEC507 |
| DC 5 | 3 1 0 | 4 | Engineering Hydrology and Hydraulics | NCEC508 |
| DC 6 | 3 1 0 | 4 | Finite Element Method | NCEC509 |
| DE 3 | 3 0 0 | 3 | | |
| RM | 3 0 0 | 3 | Research Methodology and Statistics | NCEC595 |
| DP 4 | 0 0 3 | 1.5 | Advanced Testing Laboratory | NCEC510 |
| DP 5 | 0 0 3 | 1.5 | Term Project-II | NCEC511 |
| DP 6 | 0 0 3 | 1.5 | Computational Laboratory-II | NCEC512 |
| Total Credits 22.5 | | | | |

Department of Computer Science and Engineering

2 Year M.Tech (Computer Science and Engineering)

| Semester I | | | | |
|---------------------------|-------|---------|---|-------------|
| Course Type | L-T-P | Credits | Name of the Course offered | Course Code |
| DC 1 | 3 1 0 | 4 | Advanced Data Structures & Algorithms | NCSC501 |
| DC 2 | 3 1 0 | 4 | Computing Techniques and Mathematical Tools | NCSC502 |
| DC 3 | 3 1 0 | 4 | Advanced Computer Networks | NCSC503 |
| DE 1 | 3 0 0 | 3 | | |
| DE 2 | 3 0 0 | 3 | | |
| DP 1 | 0 0 3 | 1.5 | Computing Techniques and Mathematical Tools Lab | NCSC504 |
| DP 2 | 0 0 3 | 1.5 | Advanced Data Structures & Algorithms Lab | NCSC505 |
| DP 3 | 0 0 3 | 1.5 | Advanced Computer Network Lab | NCSC506 |
| Total Credits 22.5 | | | | |

| Semester II | | | | |
|---------------------------|-------|---------|---------------------------------------|-------------|
| Course Type | L-T-P | Credits | Name of the Course to be offered | Course Code |
| DC 4 | 3 1 0 | 4 | Advanced DBMS | NCSC507 |
| DC 5 | 3 1 0 | 4 | Algorithmic Graph Theory | NCSC508 |
| DC 6 | 3 1 0 | 4 | Cryptography and Network Security | NCSC509 |
| DE 3 | 3 0 0 | 3 | | |
| RM | 3 0 0 | 3 | Research Methodology | NCSC595 |
| DP 4 | 0 0 3 | 1.5 | Advanced DBMS Lab | NCSC510 |
| DP 5 | 0 0 3 | 1.5 | Algorithmic Graph Theory Lab | NCSC511 |
| DP 6 | 0 0 3 | 1.5 | Cryptography and Network Security Lab | NCSC512 |
| Total Credits 22.5 | | | | |

For 3-Year Executive M.Tech (AI & DS)

| Semester – I | | | | |
|-------------------------|-------|---------|---|------------|
| Course Type | L-T-P | Credits | Name of the Course to be offered | Course No. |
| DC 1 | 3 1 0 | 4 | Advanced Data Structures & Algorithms | NCSC501 |
| DC 2 | 3 1 0 | 4 | Computing Techniques and Mathematical Tools | NCSC502 |
| DC 3 | 3 1 0 | 4 | Artificial Intelligence | NCSC513 |
| Total Credits 12 | | | | |

| Semester II | | | | |
|-------------------------|-------|---------|----------------------------------|-------------|
| Course Type | L-T-P | Credits | Name of the Course to be offered | Course Code |
| DC 4 | 3 1 0 | 4 | Advanced DBMS | NCSC507 |
| DC 5 | 3 1 0 | 4 | Data Analytics | NCSC516 |
| DC 6 | 3 1 0 | 4 | Deep Learning | NCSC515 |
| Total Credits 12 | | | | |

For 2-Year Executive M.Tech (AI & DS)

| Semester – I | | | | |
|-------------------------|-------|---------|---|------------|
| Course Type | L-T-P | Credits | Name of the Course to be offered | Course No. |
| DC 1 | 3 1 0 | 4 | Advanced Data Structures & Algorithms | NCSC501 |
| DC 2 | 3 1 0 | 4 | Computing Techniques and Mathematical Tools | NCSC502 |
| DC 3 | 3 1 0 | 4 | Artificial Intelligence | NCSC513 |
| DE1 | 3 0 0 | 3 | Computer Vision | NCSD503 |
| DE2 | 3 0 0 | 3 | Machine Learning | NCSD519 |
| Total Credits 18 | | | | |

| Semester II | | | | |
|-------------------------|-------|---------|----------------------------------|-------------|
| Course Type | L-T-P | Credits | Name of the Course to be offered | Course Code |
| DC4 | 3 1 0 | 4 | Advanced DBMS | NCSC507 |
| DC5 | 3 1 0 | 4 | Data Analytics | NCSC516 |
| DC6 | 3 1 0 | 4 | Deep Learning | NCSC515 |
| DE3 | 3 0 0 | 3 | Natural Language Processing | NCSD504 |
| RM | 3 0 0 | 3 | Research Methodology | NCSC595 |
| Total Credits 18 | | | | |

Department of Electronics Engineering

M.Tech (Communication and Signal Processing)

| Semester I | | | | |
|---------------------------|-------|---------|--------------------------------------|-------------|
| Course Type | L-T-P | Credits | Name of the Course offered | Course Code |
| DC 1 | 3 1 0 | 4 | Emerging Communication Systems | NECC501 |
| DC 2 | 3 1 0 | 4 | Mathematics for Communication Theory | NECC502 |
| DC 3 | 3 1 0 | 4 | Wireless Networks | NECC503 |
| DE 1 | 3 0 0 | 3 | | |
| DE 2 | 3 0 0 | 3 | | |
| DP 1 | 0 0 3 | 1.5 | 5G Communication Systems Lab | NECC515 |
| DP 2 | 0 0 3 | 1.5 | Communication Networks Lab | NECC516 |
| DP 3 | 0 0 3 | 1.5 | Modeling and Simulation Lab-I | NECC517 |
| Total Credits 22.5 | | | | |

| Semester II | | | | |
|---------------------------|-------|---------|---------------------------------------|-------------|
| Course Type | L-T-P | Credits | Name of the Course to be offered | Course Code |
| DC 4 | 3 1 0 | 4 | Statistical Signal Processing | NECC532 |
| DC 5 | 3 1 0 | 4 | Optimization Theory and Techniques | NECC504 |
| DC 6 | 3 1 0 | 4 | Estimation and Detection Theory | NECC533 |
| DE 3 | 3 0 0 | 3 | | |
| RM | 3 0 0 | 3 | Research Methodology | NECC595 |
| DP 4 | 0 0 3 | 1.5 | Signal Processing Lab | NECC518 |
| DP 5 | 0 0 3 | 1.5 | Optimization and Machine Learning Lab | NECC519 |
| DP 6 | 0 0 3 | 1.5 | Modeling and Simulation Lab-II | NECC520 |
| Total Credits 22.5 | | | | |

M.Tech (Optical Communication and Integrated Photonics)

| Semester I | | | | |
|---------------------------|-------|---------|--------------------------------|-------------|
| Course Type | L-T-P | Credits | Name of the Course offered | Course Code |
| DC 1 | 3 1 0 | 4 | Emerging Communication Systems | NECC501 |
| DC 2 | 3 1 0 | 4 | Optical Fiber Communications | NECC505 |
| DC 3 | 3 1 0 | 4 | Wireless Networks | NECC503 |
| DE 1 | 3 0 0 | 3 | | |
| DE 2 | 3 0 0 | 3 | | |
| DP 1 | 0 0 3 | 1.5 | 5G Communication Systems Lab | NECC515 |
| DP 2 | 0 0 3 | 1.5 | Optical Communication Lab | NECC521 |
| DP 3 | 0 0 3 | 1.5 | Communication Networks Lab | NECC516 |
| Total Credits 22.5 | | | | |

| Semester II | | | | |
|---------------------------|-------|---------|---|-------------|
| Course Type | L-T-P | Credits | Name of the Course to be offered | Course Code |
| DC 4 | 3 1 0 | 4 | Optoelectronic and Photonic Devices | NECC506 |
| DC 5 | 3 1 0 | 4 | Optimization Theory and Techniques | NECC504 |
| DC 6 | 3 1 0 | 4 | Photonic Integrated Circuits | NECC507 |
| DE 3 | 3 0 0 | 3 | | |
| RM | 3 0 0 | 3 | Research Methodology | NECC595 |
| DP 4 | 0 0 3 | 1.5 | Optoelectronic and Photonic Devices Lab | NECC522 |
| DP 5 | 0 0 3 | 1.5 | Photonic IC CAD Lab | NECC523 |
| DP 6 | 0 0 3 | 1.5 | Photonics Project Lab | NECC524 |
| Total Credits 22.5 | | | | |

M.Tech (RF and Microwave Engineering)

| Semester I | | | | |
|---------------------------|-------|---------|---------------------------------------|-------------|
| Course Type | L-T-P | Credits | Name of the Course offered | Course Code |
| DC 1 | 3 1 0 | 4 | Emerging Communication Systems | NECC501 |
| DC 2 | 3 1 0 | 4 | Advanced Engineering Electromagnetics | NECC508 |
| DC 3 | 3 1 0 | 4 | Microwave Measurements | NECC509 |
| DE 1 | 3 0 0 | 3 | | |
| DE 2 | 3 0 0 | 3 | | |
| DP 1 | 0 0 3 | 1.5 | 5G Communication Systems Lab | NECC515 |
| DP 2 | 0 0 3 | 1.5 | RF and CAD Laboratory | NECC525 |
| DP 3 | 0 0 3 | 1.5 | Microwave Measurements Lab | NECC526 |
| Total Credits 22.5 | | | | |

| Semester II | | | | |
|---------------------------|-------|---------|--|-------------|
| Course Type | L-T-P | Credits | Name of the Course to be offered | Course Code |
| DC 4 | 3 1 0 | 4 | Microwave Circuits and Networks | NECC535 |
| DC 5 | 3 1 0 | 4 | Advanced Antenna Theory | NECC534 |
| DC 6 | 3 1 0 | 4 | Microwave Transmission Lines and Matching Networks | NECC510 |
| DE 3 | 3 0 0 | 3 | | |
| RM | 3 0 0 | 3 | Research Methodology | NECC595 |
| DP 4 | 0 0 3 | 1.5 | RF Circuits and Networks Simulation Lab | NECC538 |
| DP 5 | 0 0 3 | 1.5 | Antenna Simulation Lab | NECC539 |
| DP 6 | 0 0 3 | 1.5 | RF Project Lab | NECC540 |
| Total Credits 22.5 | | | | |

M.Tech (VLSI Design)

| Semester I | | | | |
|---------------------------|-------|---------|-------------------------------|-------------|
| Course Type | L-T-P | Credits | Name of the Course offered | Course Code |
| DC 1 | 3 1 0 | 4 | Analog IC Design | NECC511 |
| DC 2 | 3 1 0 | 4 | Digital IC Design | NECC512 |
| DC 3 | 3 1 0 | 4 | CAD for VLSI | NECC513 |
| DE 1 | 3 0 0 | 3 | | |
| DE 2 | 3 0 0 | 3 | | |
| DP 1 | 0 0 3 | 1.5 | Circuit Simulation Lab | NECC531 |
| DP 2 | 0 0 3 | 1.5 | HDL-based System Design Lab | NECC527 |
| DP 3 | 0 0 3 | 1.5 | VLSI Design and Project Lab-I | NECC528 |
| Total Credits 22.5 | | | | |

| Semester II | | | | |
|---------------------------|-------|---------|----------------------------------|-------------|
| Course Type | L-T-P | Credits | Name of the Course to be offered | Course Code |
| DC 4 | 3 1 0 | 4 | MOS Device Physics and Modeling | NECC514 |
| DC 5 | 3 1 0 | 4 | Current Mode Analog Circuits | NECC536 |
| DC 6 | 3 1 0 | 4 | Embedded System Design | NECC537 |
| DE 3 | 3 0 0 | 3 | | |
| RM | 3 0 0 | 3 | Research Methodology | NECC595 |
| DP 4 | 0 0 3 | 1.5 | Device Simulation Lab | NECC529 |
| DP 5 | 0 0 3 | 1.5 | Embedded System Design Lab | NECC541 |
| DP 6 | 0 0 3 | 1.5 | VLSI Design and Project Lab-II | NECC530 |
| Total Credits 22.5 | | | | |

Department of Electrical Engineering

M.Tech (Power System Engineering)

Semester I

| Course Type | L-T-P | Credits | Name of the Course offered | Course Code |
|-------------|-------|---------|---------------------------------|-------------|
| DC 1 | 3 1 0 | 4 | ADVANCED CONTROL SYSTEM | NEEC501 |
| DC 2 | 3 1 0 | 4 | POWER SYSTEM ANALYSIS | NEEC502 |
| DC 3 | 3 1 0 | 4 | HVDC TRANSMISSION AND FACTS | NEEC503 |
| DE 1 | 3 0 0 | 3 | | |
| DE 2 | 3 0 0 | 3 | | |
| DP 1 | 0 0 3 | 1.5 | ADVANCED POWER SYSTEM LAB | NEEC504 |
| DP 2 | 0 0 3 | 1.5 | ADVANCED ELECTRICAL MACHINE LAB | NEEC505 |
| DP 3 | 0 0 3 | 1.5 | ADVANCED CONTROL SYSTEM LAB | NEEC506 |

Total Credits 22.5

Semester II

| Course Type | L-T-P | Credits | Name of the Course to be offered | Course Code |
|-------------|-------|---------|--|-------------|
| DC 4 | 3 1 0 | 4 | SOFT COMPUTING TECHNIQUES | NEEC508 |
| DC 5 | 3 1 0 | 4 | ADVANCED POWER SYSTEM PROTECTION | NEEC509 |
| DC 6 | 3 1 0 | 4 | SMART GRID TECHNOLOGY | NEEC507 |
| DE 3 | 3 0 0 | 3 | | |
| RM | 3 0 0 | 3 | RESEARCH METHODOLOGY & STATISTICS FOR EE | NEEC595 |
| DP 4 | 0 0 3 | 1.5 | ADVANCED SIMULATION LAB | NEEC518 |
| DP 5 | 0 0 3 | 1.5 | ADVANCED POWER SYSTEM PROTECTION LAB | NEEC513 |
| DP 6 | 0 0 3 | 1.5 | ADVANCED MEASUREMENT AND INSTRUMENTATION LAB | NEEC519 |

Total Credits 22.5

M.Tech (Power Electronics and Electrical Drives)

Semester I

| Course Type | L-T-P | Credits | Name of the Course offered | Course Code |
|-------------|-------|---------|-------------------------------------|-------------|
| DC 1 | 3 1 0 | 4 | ADVANCED CONTROL SYSTEM | NEEC501 |
| DC 2 | 3 1 0 | 4 | MODELLING OF ELECTRICAL MACHINES | NEEC514 |
| DC 3 | 3 1 0 | 4 | CONVERTER CONTROLLED MACHINE DRIVES | NEEC515 |
| DE 1 | 3 0 0 | 3 | | |
| DE 2 | 3 0 0 | 3 | | |
| DP 1 | 0 0 3 | 1.5 | ADVANCED POWER ELECTRONICS LAB | NEEC516 |
| DP 2 | 0 0 3 | 1.5 | ADVANCED ELECTRICAL MACHINE LAB | NEEC505 |
| DP 3 | 0 0 3 | 1.5 | ADVANCED CONTROL SYSTEM LAB | NEEC506 |

Total Credits 22.5

Semester II

| Course Type | L-T-P | Credits | Name of the Course to be offered | Course Code |
|-------------|-------|---------|--|-------------|
| DC 4 | 3 1 0 | 4 | ELECTRIC & HYBRID ELECTRIC VEHICLES | NEEC512 |
| DC 5 | 3 1 0 | 4 | ELECTROMAGNETIC COMPATIBILITY OF POWER CONVERTER | NEEC510 |
| DC 6 | 3 1 0 | 4 | DIGITAL CONTROL OF POWER ELECTRONICS AND DRIVES | NEEC511 |
| DE 3 | 3 0 0 | 3 | | |
| RM | 3 0 0 | 3 | RESEARCH METHODOLOGY & STATISTICS FOR EE | NEEC595 |
| DP 4 | 0 0 3 | 1.5 | ADVANCED SIMULATION LAB | NEEC518 |
| DP 5 | 0 0 3 | 1.5 | ADVANCED DRIVES LAB | NEEC517 |
| DP 6 | 0 0 3 | 1.5 | ADVANCED MEASUREMENT AND INSTRUMENTATION LAB | NEEC519 |

Total Credits 22.5

Department of Environmental Science and Engineering

M.Tech (Environmental Science and Engineering)

| Semester I | | | | |
|---------------------------|--------------|----------------|---|--------------------|
| Course Type | L-T-P | Credits | Name of the Course offered | Course Code |
| DC 1 | 3 1 0 | 4 | Advanced Data Structures & Algorithms | NCSC501 |
| DC 2 | 3 1 0 | 4 | Computing Techniques and Mathematical Tools | NCSC502 |
| DC 3 | 3 1 0 | 4 | Advanced Computer Networks | NCSC503 |
| DE 1 | 3 0 0 | 3 | | |
| DE 2 | 3 0 0 | 3 | | |
| DP 1 | 0 0 3 | 1.5 | Computing Techniques and Mathematical Tools Lab | NCSC504 |
| DP 2 | 0 0 3 | 1.5 | Advanced Data Structures & Algorithms Lab | NCSC505 |
| DP 3 | 0 0 3 | 1.5 | Advanced Computer Network Lab | NCSC506 |
| Total Credits 22.5 | | | | |

| Semester II | | | | |
|---------------------------|--------------|----------------|---|--------------------|
| Course Type | L-T-P | Credits | Name of the Course to be offered | Course Code |
| DC 4 | 3 1 0 | 4 | Integrated Solid Waste Management | NESC507 |
| DC 5 | 3 1 0 | 4 | Numerical Methods for Environmental Application | NESC508 |
| DC 6 | 3 1 0 | 4 | Environmental Remote Sensing & GIS | NESC509 |
| DE 3 | 3 0 0 | 3 | | |
| RM | 3 0 0 | 3 | Research Methodology | NESC595 |
| DP 4 | 0 0 3 | 1.5 | Integrated Solid Waste Management Practical | NESC510 |
| DP 5 | 0 0 3 | 1.5 | Environmental Computational Lab | NESC511 |
| DP 6 | 0 0 3 | 1.5 | Environmental Remote Sensing & GIS Practical | NESC512 |
| Total Credits 22.5 | | | | |

Department of Fuel, Minerals and Metallurgical Engineering

M.Tech (Fuel & Energy Engineering)

| Semester I | | | | |
|---------------------------|-------|---------|-------------------------------|-------------|
| Course Type | L-T-P | Credits | Name of the Course offered | Course Code |
| DC 1 | 3 1 0 | 4 | Fuel Technology | NFMC522 |
| DC 2 | 3 1 0 | 4 | Coal & Mineral Beneficiation | NFMC502 |
| DC 3 | 3 1 0 | 4 | Alternate Energy Systems | NFMC523 |
| DE 1 | 3 0 0 | 3 | | |
| DE 2 | 3 0 0 | 3 | | |
| DP 1 | 0 0 3 | 1.5 | Thermochemical Conversion Lab | NFMC524 |
| DP 2 | 0 0 3 | 1.5 | Fuel Technology Lab | NFMC506 |
| DP 3 | 0 0 3 | 1.5 | Mineral Processing Lab | NFMC505 |
| Total Credits 22.5 | | | | |

| Semester II | | | | |
|---------------------------|-------|---------|--|-------------|
| Course Type | L-T-P | Credits | Name of the Course to be offered | Course Code |
| DC 4 | 3 1 0 | 4 | Energy Technology | NFMC525 |
| DC 5 | 3 1 0 | 4 | CFD of Thermal and Fluid Systems | NFMC526 |
| DC 6 | 3 1 0 | 4 | Processing of Liquid and Gaseous Fuels | NFMC527 |
| DE 3 | 3 0 0 | 3 | | |
| RM | 3 0 0 | 3 | Research Methodology | NFMC595 |
| DP 4 | 0 0 3 | 1.5 | CFD of Thermal and Fluid Systems Lab | NFMC528 |
| DP 5 | 0 0 3 | 1.5 | Processing of Liquid and Gaseous Fuels Lab | NFMC529 |
| DP 6 | 0 0 3 | 1.5 | Energy Technology Lab | NFMC530 |
| Total Credits 22.5 | | | | |

M.Tech (Mineral Engineering)

| Semester I | | | | |
|---------------------------|-------|---------|---------------------------------------|-------------|
| Course Type | L-T-P | Credits | Name of the Course offered | Course Code |
| DC 1 | 3 1 0 | 4 | Size Preparation Technology | NFMC501 |
| DC 2 | 3 1 0 | 4 | Coal & Mineral Beneficiation | NFMC502 |
| DC 3 | 3 1 0 | 4 | Process Metallurgy | NFMC503 |
| DE 1 | 3 0 0 | 3 | | |
| DE 2 | 3 0 0 | 3 | | |
| DP 1 | 0 0 3 | 1.5 | Non-ferrous Extractive Metallurgy Lab | NFMC504 |
| DP 2 | 0 0 3 | 1.5 | Mineral Processing Lab | NFMC505 |
| DP 3 | 0 0 3 | 1.5 | Fuel Technology Lab | NFMC506 |
| Total Credits 22.5 | | | | |

| Semester II | | | | |
|---------------------------|-------|---------|--|-------------|
| Course Type | L-T-P | Credits | Name of the Course to be offered | Course Code |
| DC 4 | 3 1 0 | 4 | Process Equipment Selection | NFMC507 |
| DC 5 | 3 1 0 | 4 | Flowsheet Design & Plant Layout | NFMC508 |
| DC 6 | 3 1 0 | 4 | Modeling of Mineral Processing Systems | NFMC509 |
| DE 3 | 3 0 0 | 3 | | |
| RM | 3 0 0 | 3 | Research Methodology | NFMC595 |
| DP 4 | 0 0 3 | 1.5 | Simulation of Mineral Processing Systems Lab | NFMC510 |
| DP 5 | 0 0 3 | 1.5 | Fines Processing Lab | NFMC511 |
| DP 6 | 0 0 3 | 1.5 | Energy Technology Lab | NFMC530 |
| Total Credits 22.5 | | | | |

M.Tech (Metallurgical Engineering)

| Semester I | | | | |
|---------------------------|-------|---------|--|-------------|
| Course Type | L-T-P | Credits | Name of the Course offered | Course Code |
| DC 1 | 3 1 0 | 4 | Mechanical Behaviour of Materials | NFMC513 |
| DC 2 | 3 1 0 | 4 | Advanced Thermodynamics and Kinetics | NFMC514 |
| DC 3 | 3 1 0 | 4 | Process Metallurgy | NFMC503 |
| DE 1 | 3 0 0 | 3 | | |
| DE 2 | 3 0 0 | 3 | | |
| DP 1 | 0 0 3 | 1.5 | Non-ferrous Extractive Metallurgy Lab | NFMC504 |
| DP 2 | 0 0 3 | 1.5 | Mechanical Behaviour of Materials Lab | NFMC515 |
| DP 3 | 0 0 3 | 1.5 | Computer Applications in Metallurgical Engineering lab | NFMC516 |
| Total Credits 22.5 | | | | |

| Semester II | | | | |
|---------------------------|-------|---------|-----------------------------------|-------------|
| Course Type | L-T-P | Credits | Name of the Course to be offered | Course Code |
| DC 4 | 3 1 0 | 4 | Advanced Physical Metallurgy | NFMC517 |
| DC 5 | 3 1 0 | 4 | Materials Characterization | NFMC518 |
| DC 6 | 3 1 0 | 4 | Advanced Iron-Making Technologies | NFMC519 |
| DE 3 | 3 0 0 | 3 | | |
| RM | 3 0 0 | 3 | Research Methodology | NFMC595 |
| DP 4 | 0 0 3 | 1.5 | Materials Processing Lab | NFMC520 |
| DP 5 | 0 0 3 | 1.5 | Materials Characterization Lab | NFMC521 |
| DP 6 | 0 0 3 | 1.5 | Energy Technology Lab | NFMC530 |
| Total Credits 22.5 | | | | |

Department of Humanities and Social Sciences

M.A (Digital Humanities and Social Sciences)

| Semester I | | | | |
|-------------------------|-------|---------|---|-------------|
| Course Type | L-T-P | Credits | Name of the Course offered | Course Code |
| DC 1 | 3 1 0 | 4 | Introduction to Digital Humanities | NHSC501 |
| DC 2 | 3 1 0 | 4 | Statistics for Humanities and Social Sciences | NHSC502 |
| DC 3 | 3 1 0 | 4 | Corpus Linguistics | NHSC503 |
| DC 4 | 3 0 0 | 3 | E – Literature | NHSC504 |
| RM | 3 0 0 | 3 | Research Methodology | NHSC595 |
| DP 1 | 0 0 3 | 1.5 | Effective Communication Skills | NHSC505 |
| DP 2 | 0 0 3 | 1.5 | Social Research Lab | NHSC506 |
| Total Credits 21 | | | | |

| Semester II | | | | |
|---------------------------|-------|---------|---------------------------------|-------------|
| Course Type | L-T-P | Credits | Name of the Course offered | Course Code |
| DC 5 | 3 1 0 | 4 | Python Programming Essentials | NHSC508 |
| DC 6 | 3 1 0 | 4 | Text Mining | NHSC507 |
| DC 7 | 3 1 0 | 4 | Digital Ethics | NHSC509 |
| DC 8 | 3 0 0 | 3 | Digital Society | NHSC515 |
| DE 1 | 3 0 0 | 3 | -- | |
| DP 3 | 0 0 3 | 1.5 | Natural Language Processing Lab | NHSC511 |
| Total Credits 19.5 | | | | |

Department of Management Studies and Industrial Engineering

MBA

| Semester I | | | | |
|---------------------------|-------|---------|------------------------------------|-------------|
| Course Type | L-T-P | Credits | Name of the Course offered | Course Code |
| DC 1 | 3 1 0 | 4 | Organizational Behaviour | NMSC513 |
| DC 2 | 3 1 0 | 4 | Decision Modeling | NMSC502 |
| DC 3 | 3 0 0 | 3 | Managerial Economics | NMSC514 |
| DC 4 | 3 0 0 | 3 | Management Principles & Practice | NMSC515 |
| DC 5 | 3 1 0 | 4 | Financial Accounting and Reporting | NMSC516 |
| DP 1 | 0 0 3 | 1.5 | Spreadsheet Modelling | NMSC505 |
| Total Credits 19.5 | | | | |

| Semester II | | | | |
|-------------------------|-------|---------|-------------------------------------|-------------|
| Course Type | L-T-P | Credits | Name of the Course to be offered | Course Code |
| DC 6 | 3 0 0 | 3 | Corporate Finance | NMSC517 |
| DC 7 | 3 1 0 | 4 | Project Management | NMSC508 |
| DC 8 | 3 0 0 | 3 | Research Methodology and Statistics | NMSC595 |
| DC 9 | 3 1 0 | 4 | Operations Management | NMSC509 |
| DC 10 | 3 0 0 | 3 | Marketing Management | NMSC518 |
| DC 11 | 3 0 0 | 3 | Human Resource Management | NMSC519 |
| DP 2 | 0 0 2 | 1 | Business Analytics Lab | NMSC520 |
| Total Credits 21 | | | | |

MBA (BA)

| Semester I | | | | |
|---------------------------|-------|---------|------------------------------------|-------------|
| Course Type | L-T-P | Credits | Name of the Course offered | Course Code |
| DC 1 | 3 0 0 | 3 | Statistical Methods & Applications | NMSC521 |
| DC 2 | 3 1 0 | 4 | Decision Modeling | NMSC502 |
| DC 3 | 3 1 0 | 4 | Machine Learning | NMSC503 |
| DC 4 | 3 1 0 | 4 | Data Mining for Business | NMSC522 |
| DC 5 | 3 1 0 | 4 | Financial Accounting and Reporting | NMSC516 |
| DP 1 | 0 0 3 | 1.5 | Machine Learning Lab | NMSC506 |
| Total Credits 20.5 | | | | |

| Semester II | | | | |
|-------------------------|-------|---------|----------------------------------|-------------|
| Course Type | L-T-P | Credits | Name of the Course to be offered | Course Code |
| DC 6 | 3 0 0 | 3 | Corporate Finance | NMSC517 |
| DC 7 | 3 1 0 | 4 | Project Management | NMSC508 |
| DC 8 | 3 0 0 | 3 | Stochastic Processes | NMSC524 |
| DC 9 | 3 0 0 | 3 | Advanced DBMS | NMSC525 |
| DC 10 | 3 0 0 | 3 | Marketing Management | NMSC518 |
| DC 11 | 3 0 0 | 3 | Human Resource Management | NMSC519 |
| DP 2 | 0 0 2 | 1 | Advanced DBMS Lab | NMSC526 |
| Total Credits 20 | | | | |

M.Tech (Industrial Engineering and Management)

| Semester I | | | | |
|---------------------------|-------|---------|----------------------------------|-------------|
| Course Type | L-T-P | Credits | Name of the Course offered | Course Code |
| DC 1 | 3 1 0 | 4 | Manufacturing System Engineering | NMSC501 |
| DC 2 | 3 1 0 | 4 | Decision Modeling | NMSC502 |
| DC 3 | 3 1 0 | 4 | Machine Learning | NMSC503 |
| DE 1 | 3 0 0 | 3 | | |
| DE 2 | 3 0 0 | 3 | | |
| DP 1 | 0 0 3 | 1.5 | Stochastic Programming Lab | NMSC504 |
| DP 2 | 0 0 3 | 1.5 | Spreadsheet Modelling | NMSC505 |
| DP 3 | 0 0 3 | 1.5 | Machine Learning Lab | NMSC506 |
| Total Credits 22.5 | | | | |

| Semester II | | | | |
|---------------------------|-------|---------|-------------------------------------|-------------|
| Course Type | L-T-P | Credits | Name of the Course to be offered | Course Code |
| DC 4 | 3 1 0 | 4 | Work Study & Ergonomics | NMSC507 |
| DC 5 | 3 1 0 | 4 | Project Management | NMSC508 |
| DC 6 | 3 1 0 | 4 | Operations Management | NMSC509 |
| DE 3 | 3 0 0 | 3 | | |
| RM | 3 0 0 | 3 | Research Methodology & Statistics | NMSC595 |
| DP 4 | 0 0 3 | 1.5 | Software Lab | NMSC510 |
| DP 5 | 0 0 3 | 1.5 | Simulation Modelling & Analysis Lab | NMSC511 |
| DP 6 | 0 0 3 | 1.5 | Work Study & Ergonomics Lab | NMSC512 |
| Total Credits 22.5 | | | | |

Executive MBA

| Semester I | | | | |
|---------------------------|-------|---------|----------------------------------|-------------|
| Course Type | L-T-P | Credits | Name of the Course offered | Course Code |
| DC 1 | 3 1 0 | 4 | Organizational Behaviour | NMSC513 |
| DC 2 | 3 1 0 | 4 | Decision Modeling | NMSC502 |
| DC 3 | 3 0 0 | 3 | Managerial Economics | NMSC514 |
| DC 4 | 3 0 0 | 3 | Management Principles & Practice | NMSC515 |
| DC 5 | 3 1 0 | 4 | Financial Accounting & Reporting | NMSC516 |
| DP 1 | 0 0 3 | 1.5 | Spreadsheet Modelling | NMSC505 |
| Total Credits 19.5 | | | | |

| Semester II | | | | |
|-------------------------|-------|---------|-------------------------------------|-------------|
| Course Type | L-T-P | Credits | Name of the Course offered | Course Code |
| DC 6 | 3 0 0 | 3 | Corporate Finance | NMSC517 |
| DC 7 | 3 1 0 | 4 | Project Management | NMSC508 |
| DC 8 | 3 0 0 | 3 | Research Methodology and Statistics | NMSC595 |
| DC 9 | 3 1 0 | 4 | Operations Management | NMSC509 |
| DC 10 | 3 0 0 | 3 | Marketing Management | NMSC518 |
| DC 11 | 3 0 0 | 3 | Human Resource Management | NMSC519 |
| DP 2 | 0 0 2 | 1.0 | Business Analytics Lab | NMSC520 |
| Total Credits 21 | | | | |

Department of Mathematics & Computing

M.Sc. (Mathematics and Computing)

| Semester I | | | | |
|-------------------------|-------|---------|--------------------------------------|-------------|
| Course Type | L-T-P | Credits | Name of the Course offered | Course Code |
| DC 1 | 3 1 0 | 4 | Probability & Statistics | NMCC513 |
| DC 2 | 3 1 0 | 4 | Advanced Algebra | NMCC514 |
| DC 3 | 3 1 0 | 4 | Differential Equations | NMCC515 |
| DC 4 | 3 0 0 | 3 | Advanced Numerical Methods | NMCC516 |
| DC 5 | 3 0 0 | 3 | Data Structures | NMCC517 |
| DP 1 | 0 0 3 | 1.5 | Advanced Numerical Methods Practical | NMCC518 |
| DP 2 | 0 0 3 | 1.5 | Data Structures Practical | NMCC519 |
| Total Credits 21 | | | | |

| Semester II | | | | |
|-------------------------|-------|---------|--|-------------|
| Course Type | L-T-P | Credits | Name of the Course to be offered | Course Code |
| DC 6 | 3 1 0 | 4 | Functional Analysis | NMCC520 |
| DC 7 | 3 1 0 | 4 | Topology | NMCC521 |
| DC 8 | 3 0 0 | 3 | Operating Systems | NMCC522 |
| DC 9 | 3 0 0 | 3 | Database Management Systems | NMCC523 |
| DE 1 | 3 0 0 | 3 | | |
| DP 3 | 0 0 3 | 1.5 | Operating Systems Practical | NMCC524 |
| DP 4 | 0 0 3 | 1.5 | Data Base Management Systems Practical | NMCC525 |
| Total Credits 20 | | | | |

M.Tech (Data Analytics)

| Semester I | | | | |
|---------------------------|-------|---------|--|-------------|
| Course Type | L-T-P | Credits | Name of the Course offered | Course Code |
| DC 1 | 3 1 0 | 4 | Numerical Linear Algebra | NMCC501 |
| DC 2 | 3 1 0 | 4 | Fundamentals of Machine Learning | NMCC502 |
| DC 3 | 3 1 0 | 4 | Statistics in Decision Makings | NMCC503 |
| DE 1 | 3 0 0 | 3 | | |
| DE 2 | 3 0 0 | 3 | | |
| DP 1 | 0 0 3 | 1.5 | Numerical Linear Algebra Lab | NMCC504 |
| DP 2 | 0 0 3 | 1.5 | Fundamentals of Machine Learning Practical | NMCC505 |
| DP 3 | 0 0 3 | 1.5 | Statistics in Decision Makings Practical | NMCC506 |
| Total Credits 22.5 | | | | |

| Semester II | | | | |
|---------------------------|-------|---------|--|-------------|
| Course Type | L-T-P | Credits | Name of the Course to be offered | Course Code |
| DC 4 | 3 1 0 | 4 | Advanced DBMS | NMCC507 |
| DC 5 | 3 1 0 | 4 | Neural Networks and Deep Learning | NMCC508 |
| DC 6 | 3 1 0 | 4 | Advanced Data Structures & Algorithm | NMCC509 |
| DE 3 | 3 0 0 | 3 | | |
| RM | 3 0 0 | 3 | | |
| DP 4 | 0 0 3 | 1.5 | Advanced DBMS Practical | NMCC510 |
| DP 5 | 0 0 3 | 1.5 | Neural Networks and Deep Learning Practical | NMCC511 |
| DP 6 | 0 0 3 | 1.5 | Advanced Data Structures & Algorithm Practical | NMCC512 |
| Total Credits 22.5 | | | | |

Department of Mechanical Engineering

M.Tech (Manufacturing Engineering)

| Semester I | | | | |
|---------------------------|-------|---------|------------------------------|-------------|
| Course Type | L-T-P | Credits | Name of the Course offered | Course Code |
| DC 1 | 3 1 0 | 4 | Machining Science | NMEC501 |
| DC 2 | 3 1 0 | 4 | Thermo Production Process | NMEC502 |
| DC 3 | 3 1 0 | 4 | Theory of Metal Forming | NMEC503 |
| DE 1 | 3 0 0 | 3 | | |
| DE 2 | 3 0 0 | 3 | | |
| DP 1 | 0 0 3 | 1.5 | Thermo-Production Lab | NMEC504 |
| DP 2 | 0 0 3 | 1.5 | Modelling and Simulation Lab | NMEC505 |
| DP 3 | 0 0 3 | 1.5 | Machining Lab | NMEC506 |
| Total Credits 22.5 | | | | |

| Semester II | | | | |
|---------------------------|-------|---------|--|-------------|
| Course Type | L-T-P | Credits | Name of the Course to be offered | Course Code |
| DC 4 | 3 1 0 | 4 | Additive Manufacturing | NMEC525 |
| DC 5 | 3 1 0 | 4 | CAM and Automation | NMEC526 |
| DC 6 | 3 1 0 | 4 | Unconventional Manufacturing Processes | NMEC536 |
| DE 3 | 3 0 0 | 3 | | |
| RM | 3 0 0 | 3 | Research Methodology | NMEC595 |
| DP 4 | 0 0 3 | 1.5 | CAM and Mechatronics Lab | NMEC527 |
| DP 5 | 0 0 3 | 1.5 | Additive Manufacturing Lab | NMEC528 |
| DP 6 | 0 0 3 | 1.5 | Unconventional Manufacturing Lab | NMEC529 |
| Total Credits 22.5 | | | | |

M.Tech (Thermal Engineering)

| Semester I | | | | |
|---------------------------|-------|---------|----------------------------|-------------|
| Course Type | L-T-P | Credits | Name of the Course offered | Course Code |
| DC 1 | 3 1 0 | 4 | Numerical Methods | NMEC513 |
| DC 2 | 3 1 0 | 4 | Advanced Fluid Dynamics | NMEC514 |
| DC 3 | 3 1 0 | 4 | Advanced Thermodynamics | NMEC515 |
| DE 1 | 3 0 0 | 3 | | |
| DE 2 | 3 0 0 | 3 | | |
| DP 1 | 0 0 3 | 1.5 | Thermo-Fluids Lab-I | NMEC516 |
| DP 2 | 0 0 3 | 1.5 | Thermo-Fluids Lab-II | NMEC517 |
| DP 3 | 0 0 3 | 1.5 | Computing Lab | NMEC518 |
| Total Credits 22.5 | | | | |

| Semester II | | | | |
|---------------------------|-------|---------|----------------------------------|-------------|
| Course Type | L-T-P | Credits | Name of the Course to be offered | Course Code |
| DC 4 | 3 1 0 | 4 | Computational Fluid Dynamics | NMEC522 |
| DC 5 | 3 1 0 | 4 | Conduction and Radiation | NMEC523 |
| DC 6 | 3 1 0 | 4 | Convection and Two-Phase Flow | NMEC524 |
| DE 3 | 3 0 0 | 3 | | |
| RM | 3 0 0 | 3 | Research Methodology | NMEC595 |
| DP 4 | 0 0 3 | 1.5 | Computational Fluid Dynamics Lab | NMEC530 |
| DP 5 | 0 0 3 | 1.5 | Thermo-fluids Lab – III | NMEC531 |
| DP 6 | 0 0 3 | 1.5 | Solar Thermal lab | NMEC532 |
| Total Credits 22.5 | | | | |

M.Tech (Machine Design)

| Semester I | | | | |
|-------------------|-------|---------|---|-------------|
| Course Type | L-T-P | Credits | Name of the Course offered | Course Code |
| DC 1 | 3 1 0 | 4 | Theory of Elasticity | NMEC507 |
| DC 2 | 3 1 0 | 4 | Mechanical Vibration | NMEC508 |
| DC 3 | 3 1 0 | 4 | Finite Element Methods | NMEC509 |
| DE 1 | 3 0 0 | 3 | | |
| DE 2 | 3 0 0 | 3 | | |
| DP 1 | 0 0 3 | 1.5 | Computation Lab | NMEC510 |
| DP 2 | 0 0 3 | 1.5 | Mechanical Vibration Lab | NMEC511 |
| DP 3 | 0 0 3 | 1.5 | Structural Modelling and Simulation lab | NMEC512 |

| Semester II | | | | |
|---------------------------|-------|---------|----------------------------------|-------------|
| Course Type | L-T-P | Credits | Name of the Course to be offered | Course Code |
| DC 4 | 3 1 0 | 4 | Fracture Mechanics | NMEC519 |
| DC 5 | 3 1 0 | 4 | Advanced Dynamics | NMEC520 |
| DC 6 | 3 1 0 | 4 | Control System | NMEC521 |
| DE 3 | 3 0 0 | 3 | | |
| RM | 3 0 0 | 3 | Research Methodology | NMEC595 |
| DP 4 | 0 0 3 | 1.5 | Control System Lab | NMEC533 |
| DP 5 | 0 0 3 | 1.5 | Mechanical Characterization Lab | NMEC534 |
| DP 6 | 0 0 3 | 1.5 | Research Methodology Lab 2 | NMEC535 |
| Total Credits 22.5 | | | | |

Department of Mining Engineering

M.Tech (Mining Engineering)

| Semester I | | | | |
|---------------------------|-------|---------|--|-------------|
| Course Type | L-T-P | Credits | Name of the Course offered | Course Code |
| DC 1 | 3 1 0 | 4 | Computational Geomechanics and Ground Control | NMNC501 |
| DC 2 | 3 1 0 | 4 | Computational Subsurface Ventilation and Environment | NMNC502 |
| DC 3 | 3 1 0 | 4 | Risk and Workplace Safety Management | NMNC503 |
| DE 1 | | | | |
| DE 2 | | | | |
| DP 1 | 0 0 3 | 1.5 | Computational Geomechanics and Ground Control Lab | NMNC504 |
| DP 2 | 0 0 3 | 1.5 | Computational Subsurface Ventilation and Environment Lab | NMNC505 |
| DP 3 | 0 0 3 | 1.5 | Numerical Modelling Lab | NMNC506 |
| Total Credits 22.5 | | | | |

| Semester II | | | | |
|---------------------------|-------|---------|---|-------------|
| Course Type | L-T-P | Credits | Name of the Course to be offered | Course Code |
| DC 4 | 3 1 0 | 4 | Mine Planning and Design | NMNC515 |
| DC 5 | 3 1 0 | 4 | Mining Equipment Reliability, Maintainability, and Availability | NMNC516 |
| DC 6 | 3 1 0 | 4 | Mass Production Mining Technology | NMNC517 |
| DE 3 | 3 0 0 | | | |
| RM | 3 0 0 | 3 | Research Methodology | NMNC595 |
| DP 4 | 0 0 3 | 1.5 | Mine Simulation and Data Analytics Practical | NMNC518 |
| DP 5 | 0 0 3 | 1.5 | Computer Aided Mine Planning and Design Practical | NMNC519 |
| DP 6 | 0 0 3 | 1.5 | Safety Health and Ergonomics Practical | NMNC520 |
| Total Credits 22.5 | | | | |

M.Tech (Geomatics)

| Semester I | | | | |
|---------------------------|-------|---------|---|-------------|
| Course Type | L-T-P | Credits | Name of the Course offered | Course Code |
| DC 1 | 3 1 0 | 4 | Mine Surveying Techniques | NMNC509 |
| DC 2 | 3 1 0 | 4 | Geographical Information System | NMNC510 |
| DC 3 | 3 1 0 | 4 | Remote Sensing and Digital Image Processing | NMNC511 |
| DE 1 | 3 0 0 | 3 | | |
| DE 2 | 3 0 0 | 3 | | |
| DP 1 | 0 0 3 | 1.5 | Remote Sensing and Image Processing Lab | NMNC512 |
| DP 2 | 0 0 3 | 1.5 | GIS Lab | NMNC513 |
| DP 3 | 0 0 3 | 1.5 | Advanced Surveying Lab | NMNC514 |
| Total Credits 22.5 | | | | |

| Semester II | | | | |
|---------------------------|-------|---------|---|-------------|
| Course Type | L-T-P | Credits | Name of the Course to be offered | Course Code |
| DC 4 | 3 1 0 | 4 | Geodesy and GNSS Survey | NMNC525 |
| DC 5 | 3 1 0 | 4 | Microwave Remote Sensing | NMNC526 |
| DC 6 | 3 1 0 | 4 | Computer Aided Mine Planning and Design | NMNC527 |
| DE 3 | 3 0 0 | 3 | | |
| RM | 3 0 0 | 3 | Research Methodology | NMNC595 |
| DP 4 | 0 0 3 | 1.5 | Microwave Remote Sensing Practical | NMNC528 |
| DP 5 | 0 0 3 | 1.5 | Geospatial Data Modelling Practical | NMNC529 |
| DP 6 | 0 0 3 | 1.5 | Mine Surveying Camp | NMNC530 |
| Total Credits 22.5 | | | | |

M.Tech (Tunneling and Underground Space Technology)

| Semester I | | | | |
|---------------------------|-------|---------|--|-------------|
| Course Type | L-T-P | Credits | Name of the Course offered | Course Code |
| DC 1 | 3 1 0 | 4 | Geomechanics for Underground Space | NMNC507 |
| DC 2 | 3 1 0 | 4 | Computational Subsurface Ventilation and Environment | NMNC502 |
| DC 3 | 3 1 0 | 4 | Risk and Workplace Safety Management | NMNC503 |
| DE 1 | 3 0 0 | 3 | | |
| DE 2 | 3 0 0 | 3 | | |
| DP 1 | 0 0 3 | 1.5 | Geomechanics Lab | NMNC508 |
| DP 2 | 0 0 3 | 1.5 | Computational Subsurface Ventilation and Environment Lab | NMNC505 |
| DP 3 | 0 0 3 | 1.5 | Numerical Modelling Lab | NMNC506 |
| Total Credits 22.5 | | | | |

| Semester II | | | | |
|---------------------------|-------|---------|---|-------------|
| Course Type | L-T-P | Credits | Name of the Course to be offered | Course Code |
| DC 4 | 3 1 0 | 3 | Planning and Design for Tunnels and Caverns | NMNC521 |
| DC 5 | 3 1 0 | 3 | Excavation Methods for Tunnels and Caverns | NMNC522 |
| DC 6 | 3 1 0 | 3 | NATM and TBM Tunneling | NMNC523 |
| DE 3 | 3 0 0 | 3 | | |
| RM | 3 0 0 | 3 | Research Methodology | NMNC595 |
| DP 4 | 0 0 3 | 1.5 | Rock Excavation Practical | NMNC524 |
| DP 5 | 0 0 3 | 1.5 | Mine Simulation and Data Analytics lab | NMNC518 |
| DP 6 | 0 0 3 | 1.5 | Safety Health and Ergonomics Practical | NMNC520 |
| Total Credits 22.5 | | | | |

Department of Petroleum Engineering

M.Tech (Petroleum Engineering)

Semester I

| Course Type | L-T-P | Credits | Name of the Course offered | Course Code |
|---------------------------|-------|---------|---|-------------|
| DC 1 | 3 1 0 | 4 | Advanced Production Technologies | NPEC501 |
| DC 2 | 3 1 0 | 4 | Advanced Well Testing | NPEC502 |
| DC 3 | 3 1 0 | 4 | Formation Evaluation and Production Logging | NPEC503 |
| DE 1 | 3 0 0 | 3 | | |
| DE 2 | 3 0 0 | 3 | | |
| DP 1 | 0 0 3 | 1.5 | Reservoir Characterization | NPEC504 |
| DP 2 | 0 0 3 | 1.5 | Term paper/Mini Project | NPEC505 |
| DP 3 | 0 0 3 | 1.5 | Production Logging Practical | NPEC506 |
| Total Credits 22.5 | | | | |

Semester II

| Course Type | L-T-P | Credits | Name of the Course to be offered | Course Code |
|---------------------------|-------|---------|---|-------------|
| DC 4 | 3 1 0 | 4 | Petroleum Geomechanics and Hydraulic Fracturing | NPEC507 |
| DC 5 | 3 1 0 | 4 | Advanced Drilling Technology | NPEC508 |
| DC 6 | 3 1 0 | 4 | Numerical Methods for Petroleum Engineers | NPEC509 |
| DE 3 | 3 0 0 | 3 | | |
| RM | 3 0 0 | 3 | Research Methodology | NPEC595 |
| DP 4 | 0 0 3 | 1.5 | Petroleum Instrumentation and Measurements | NPEC510 |
| DP 5 | 0 0 3 | 1.5 | Development of Working Models | NPEC511 |
| DP 6 | 0 0 3 | 1.5 | Advanced Drilling Simulation Lab | NPEC512 |
| Total Credits 22.5 | | | | |

Department of Physics

M.Sc. (Physics)

| Semester I | | | | |
|-------------------------|-------|---------|--|-------------|
| Course Type | L-T-P | Credits | Name of the Course offered | Course Code |
| DC 1 | 3 1 0 | 4 | Classical Mechanics and Special Theory of Relativity | NPHC501 |
| DC 2 | 3 1 0 | 4 | Methods of Mathematical Physics | NPHC502 |
| DC 3 | 3 1 0 | 4 | Quantum Mechanics-I | NPHC503 |
| DC 4 | 3 0 0 | 3 | Electronics | NPHC504 |
| DC 5 | 3 0 0 | 3 | Numerical Methods and Computer Programming | NPHC505 |
| DP 1 | 0 0 3 | 1.5 | Experimental Physics I | NPHC506 |
| DP 2 | 0 0 3 | 1.5 | Experimental Physics II | NPHC507 |
| Total Credits 21 | | | | |

| Semester II | | | | |
|-------------------------|-------|---------|--------------------------------------|-------------|
| Course Type | L-T-P | Credits | Name of the Course offered | Course Code |
| DC 6 | 3 1 0 | 4 | Quantum Mechanics-II | NPHC508 |
| DC 7 | 3 1 0 | 4 | Electrodynamics and Radiation theory | NPHC509 |
| DC 8 | 3 0 0 | 3 | Nuclear and Particle Physics | NPHC510 |
| DC 9 | 3 0 0 | 3 | Condensed Matter Physics | NPHC511 |
| DE 1 | 3 0 0 | 3 | | |
| DP 3 | 0 0 3 | 1.5 | Experimental Physics III | NPHC512 |
| DP 4 | 0 0 3 | 1.5 | Experimental Physics IV | NPHC513 |
| Total Credits 20 | | | | |