

M.Tech. Programme in M&S

Batch 2020-22

18 January 2021

Programme structure

- Coursework: 3 semesters
 - Core courses (54 Credits)
 - Elective/choice courses (18 Credits)
- Internship: 1 semester
- To complete the programme: Minimum 4, maximum 8 semesters
- 18 credits/semester (1 credit \equiv 15 contact hours)
- UGC-mandated courses
 - Human rights education: 2 credits
 - Cybersecurity: 4 credits
 - Skill development: 4 credits

These are mandatory but not counted for CGPA

- Professional development/soft skills workshops
 - Time & stress management
 - Self-study skills
 - Presentation and other soft skills

In your own best interests ...

Core credits: **18**, choice-based/elective credits: **0**

Code	Name	Credits
19.C101	Real Analysis and Calculus	2
19.C102	Complex Analysis	2
19.C103	Vector Calculus	2
19.C104	Linear Algebra	3
19.C105	Probability Theory with R	3
19.C106	Fundamentals of Computing	3
19.C107	Modeling & Simulation 1	3

Detailed curriculum

<http://cms.unipune.ac.in/reports/pd-20190701/>

Core credits: **10**, choice-based/elective credits: **8***

Code	Name	Credits
19.C201	Numerical Computing 1	2
19.C202	Optimization 1	2
19.C203	Statistical Inference	3
19.C204	Modeling & Simulation 2	3

Detailed curriculum

<http://cms.unipune.ac.in/reports/pd-20190701/>

*Electives to be chosen and finalized **before** the beginning of this semester.

Core credits: **8**, choice-based/elective credits: **10***

Code	Name	Credits
19.C301	Numerical Computing 2	2
19.C302	Optimization 2	3
19.C303	Practical Computing	1
19.C304	M&S Hands-On	2

Detailed curriculum

<http://cms.unipune.ac.in/reports/pd-20190701/>

*Electives to be chosen and finalized **before** the beginning of this semester.

Registration/admission to S3 requires pass or better grade in 50% or more combined S1+S2 credits.

Core credits: **18**, choice-based/elective credits: **0**

Code	Name	Credits
19.C401	Internship	18

Detailed curriculum

<http://cms.unipune.ac.in/reports/pd-20190701/>

- Rules & regulations, choice-based credit system, 2020 revision
- Examination & other regulations by the University
- Changes & updates by the University from time to time

- 25% weight (18CR) in the curriculum
- Popular in-house electives: ⟨Machine Learning⟩, ⟨Operations Research⟩, ⟨Complex Networks⟩, . . .
- In principle, any course offered under SPPU's choice-based credit system can be taken as elective – with approval of the parent and the offering department both.
- Offering department may charge separate fees.
- To be chosen and finalized **before** the beginning of a semester.
- In-house electives are offered if
 - at least 5 students register
 - a qualified instructor is available to teach

Potential in-house electives under the MTech programme
(<http://cms.unipune.ac.in/reports/pd-20190701/>)

- Audit course: A course which you are interested in taking **without** evaluation
- Not counted for GPA, but mentioned on the gradesheet
- Gradesheet reports only “completed” or “not completed”
- Courses from other departments: Separate fees may apply
- To be chosen and finalized **before** the beginning of a semester

Grading & evaluation

Basic model of G&E

Course evaluation

Continuous assessment (50%) + Term-end examination (50%)

Course passing rule

CA	TE	Total
$\geq 15\%$	$\geq 15\%$	$\geq 40\%$

Letter grades, GPA, CGPA

See the document mentioned below.

Detailed rules and regulations

Rules & regulations, choice-based credit system, 2020 revision

Please read this entire document!

One or more of the following

- quizzes: written, online (current SOP), open-resource (current SOP), surprise!
- assignments: conventional/analytical, computing/coding, ...
- individual/group projects, term papers/literature survey work
- vivas, presentations
- something entirely different, at the teacher's discretion

Designed to test your knowledge, skills, commitment, ..., in the true spirit of academics!

- Conventionally, a written and/or laboratory examination
- In the current situation, there can be improvisations as appropriate and necessary

Designed to test your knowledge, skills, commitment, ..., in the true spirit of academics!

Academic honour code

Academic honour code

- Your solutions to homeworks, quizzes, and examinations must be your own work, except when collaboration is explicitly allowed by the instructor/teacher.
- You may discuss assignments among yourselves or with the instructor/teacher. However, all submissions must be original works done independently by you.
- You may not share your solutions – unless explicitly allowed by the instructor/teacher.
- You may not engage in any activity that would dishonestly improve your results, or improve or hurt the results of others.
- You may not post answers to problems that are being used to assess student performance.

Acknowledgment: The wording and content above is based on or taken from the wording and content of the ⟨Coursera⟩ and ⟨edX⟩ honour codes.

Plagiarism is when you copy or reproduce words, ideas, or any other materials from another source without giving credit to the original author. Plagiarism also includes the practice of employing or allowing another person to alter or revise your work, and then submitting the work as your own. Plagiarism is unacceptable in any academic environment, and is a serious violation of SCMS's Honour Code.

Acknowledgment: The wording and content above is based on or taken from the wording and content of the ⟨Coursera⟩ and ⟨edX⟩ honour codes.

SPPU's policy on plagiarism: Click [⟨here⟩](#) and [⟨here⟩](#)

Our outlook . . . Zero tolerance!

Resources for students

SCMS resources

- Official email address @scms.unipune.ac.in
- Web space on the scms.unipune.ac.in domain
- A well-equipped in-house library
- Computer labs and computing facilities
- Access to in-house LMS: (Moodle), cloud, git, ...
- 24×7 access (when University and Government policies allow that)
- Friendly and helpful staff
- Excellent, committed in-house and visiting faculty
- Academic environment: Friendly + Lively + Rigorous + Vigorous

University resources: Optional; should be available post-COVID

- The (Jayakar Library)
- Gym: at concessional fee
- Hostel: allotment/fees as per University policies

Moodle@SCMS & other in-house services

First-time access

You credentials for your first-time access to [\(Moodle\)](#) and other in-house services including email will be sent to the email address you have provided.

Stay tuned!

Thereafter

all official communication will be sent to your official SCMS email address
(xyz@scms.unipune.ac.in)

It is **your** responsibility to check your
xyz@scms.unipune.ac.in
email frequently!

All course-related communication: [\(Moodle\)](#)

What to expect when you are . . .

- Formalities
 - Admission: Already done
 - Paperwork & fees: Already done
 - Eligibility procedure: Contact office staff
 - TE form submission: some time mid-semester
- Student-led Saturday colloquia: Need volunteers
- Start thinking about your S2 electives
- Decide your S2 electives before the close of S1
- Keep self-refinement your analytical, critical, problem-solving, math, stat, computing, M&S skills
- Life may seem relaxed; however, . . .

If you have ideas for any other relevant student activity, please let us know any time!

Timeline: Semester 2

- Formalities
 - Paperwork/fees: As per University policies; contact office staff
 - TE form submission: some time mid-semester
- Electives begin . . . war zone!
- Student-led Saturday colloquia
- Your professional presence
 - your CV/resumé
 - your LinkedIn (or other professional) profile
 - your batch's placement brochure
- Start thinking about your S3 electives
- Decide your S3 electives before the close of S2
- Start thinking about your S4 internship early on during S2!
 - Consider taking up a internship in the gap between S2 and S3
 - See next slide for the efforts required
 - An early bird catches the best worm!
- Keep self-refinement your analytical, critical, problem-solving, math, stat, computing, M&S skills

- Formalities
 - Admission: Requires \geq pass grade in $\geq 50\%$ of S1+S2 credits
 - Paperwork/fees: As per University policies; contact office staff
 - TE form submission: some time mid-semester
- Induct the next batch!
- Student-led Saturday colloquia: Induct new volunteers!
- **Active search for your S4 internship all through S3!**
 - IF you have found one at the beginning of S3: Part of $\langle 19.C304 \text{ M\&S Hands-On} \rangle$ can be used to prepare for the internship
 - Active, consistent, individual+collective efforts
 - Alumni connects, existing industry connects, new connects, ...
 - Professionalism in approach, conduct, presentation, ...
 - An early bird catches the best worm!
- **Keep self-refinement your analytical, critical, problem-solving, math, stat, computing, M&S skills**

- Formalities
 - Consent: internship company, internal guide/mentor < W1
 - Offer letter from internship company < W1
 - TE form submission: some time mid-semester
- Continuous assessment (CA)
 - Weekly reporting to internal guide/mentor
 - Mid-term viva
 - Mid-term presentation
- Term-end examination (TE)
 - Written report
 - Poster + viva
- What is not allowed for the internship
 - Work that has no bearing on the M.Tech. programme
 - Work that has no bearing on M&S – e.g., IT-like work

We expect substantial, original, authentic, committed, regular work!

How to make this programme work for you

- This is PG programme which assumes certain maturity on part of the student
- Greater onus on the student
- Passive/mindless learning does not work
- Teaching-learning are more of assisted self-learning: Your level of motivation matters
- Regular & consistent work, self-study, self-driven out-of-class work
- Study groups, collaborative/team work (not during exams!)
- Keep in regular touch with seniors, alumni, faculty

Faculty and staff are there for guidance and help!

How to make this programme work for you

Math + Stat + Computing
are all equally important and useful

Do not neglect any of these

Do not neglect programming/coding

How to make this programme work for you



Garbage in garbage out

ADAM

Image courtesy: (https://adamwilson.info/cartoons/garbage_in_garbage_out/)

The Bottom Line

What you get out of any academic programme depends on what you put into it.

Faculty and staff are there for guidance and help!

Teaching in this particular semester!

- Primarily online: recorded videos, interactive sessions, ...
- Primary platform for course-related communication: ⟨Moodle⟩
- Those who do not have laptop, desktop, or a smart device available: Please let us know immediately
- Primary email address for programme-related communication:
`coordinator@scms.unipune.ac.in`

Your S4 internship ...

How to make the best of your internship

- Start thinking about your internship early!
- Find your interest areas
- Search for companies or people with overlapping interests
- A professional resumé that reflects well upon you: content and visual aspects
- A professional web profile (e.g., LinkedIn) that reflects well upon you: content and connections
- Well-written, professional emails
- Think of taking up a short internship between S2 and S3
- Individual search: Professional approach
- Collective search: Professional approach + team work
- Continuous self-tinkering to develop programming skills, know-how of toolboxes, . . .
- Continuous self-refinement to hone your analytical, critical, problem-solving, math, stat, M&S skills

- Advertise yourselves heavily through your work
 - Short videos explaining your projects & what you are capable of
 - Advertise collective capabilities on social media
 - Through your professional network (e.g., via LinkedIn)
- Need continuous brainstorming
- Need concerted & focused collective effort
- Network with alumni, existing industry contacts
- Make new industry contacts
- Refine your soft skills: presentation, communication, ...
- Distinguishing factors: work quality, commitment, coding skills, ...

An **ideal** timeline for internship

S1 & S2	Explore your interests.
End of S2	Decide your area of interest.
Between S2 & S3	Do a short internship (in-house or outside). Finalize your internship place, area, guide/mentor. Find out the preparation needed for your internship.
Semester 3	Use (19.C304 M&S Hands-On) to prepare for internship.
Semester 4	First 4.5 months: Work on your internship problem. Last month: report and poster.

It may not work exactly this way, but it is worth aiming for this! Keep your faculty mentor updated about your efforts and hurdles you face.

What alumni say about (S)CMS

`<http://cms.unipune.ac.in/alumni/feedback/>`

Questions?