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# SYMBIOSIS INTERNATIONAL (DEEMED UNIVERSITY)

(Established under section 3 of the UGC Act, 1956)
Re-accredited by NAAC with 'A++' Grade | Awarded Category – I by UGC
Founder: Prof. Dr. S. B. Mujumdar, M. Sc., Ph. D. (Awarded Padma Bhushan and Padma Shri by President of India)

SIU/ACAD/2025/1883 Date: 10/05/2025

To,
The Director
Symbiosis Institute of Technology,
Pune.

Reference: SIU letter no SIU/ACAD/2024/5157 dated 16/12/2024, regarding of programme structure of batch 2024-2026.

**Subject: Approval of the revised programme structure of Master of Technology (Engineering Design) in Full Time (By Research) Mode for the batch 2024-26.**

Dear Sir,

The Programme Structure of Master of Technology (Engineering Design) in Full Time (By Research) Mode for the batch 2024-26 is approved.

The revised programme structure supersedes the previously approved programme structures referred to in the above letter.

The programme structure is approved and is attached herewith for your perusal.

| Sr. No. | Name of the Programme | Batch | Revision |
|---|---|---|---|
| 1 | Master of Technology (Engineering Design)-Full Time | 2024-26 | 01 |

Thanking you!

Sincerely,

Dr. Asmita Dani
Director- Academics

Copy to: Controller of Examinations, SIU



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**SYMBIOSIS INSTITUTE OF TECHNOLOGY, PUNE**
**MASTER OF TECHNOLOGY (ENGINEERING DESIGN)**
**PROGRAMME STRUCTURE: 2024-26**

<table>
<tr><td>1.</td><td>OBJECTIVE:</td><td colspan="4">This programme aims to:<br><br>1. Provide an opportunity to pursue an independent research project while benefitting from the support of expert supervision.<br>2. Develop an understanding of the research study, linking the research project directly to the candidate's current or future career interests, and obtain a taste of what PhD study might entail.<br>3. Encourage the multidisciplinary research<br>4. Strengthen the students' core knowledge and provide research training to contribute in the field of Science, Engineering and technology.<br>5. Enhance the research culture and industry-academia connect at Faculty of Engineering, SIU.</td></tr>
<tr><td>2.</td><td>DURATION IN MONTHS:</td><td colspan="4">24; Full Time (By Research)</td></tr>
<tr><td>3.</td><td>INTAKE:</td><td colspan="4">12</td></tr>
<tr><td rowspan="4">4.</td><td rowspan="4">RESERVATION OF SEATS:</td><td rowspan="2">I. Within the sanctioned intake</td><td>a) SC (In Percentage)</td><td>b) ST (In Percentage)</td><td>c) Differently abled (In Percentage)</td></tr>
<tr><td>15</td><td>7.5</td><td>3</td></tr>
<tr><td rowspan="2">II. Over and above the sanctioned intake</td><td colspan="2">a) Kashmiri Migrants (In Seats)</td><td>b) International Students (In Percentage)</td></tr>
<tr><td colspan="2">2</td><td>15</td></tr>
<tr><td>5.</td><td>ELIGIBILITY:</td><td colspan="4">The Eligibility criteria is specified as per the UGC norms.<br><br>a) Engineering graduate (B.E./B.Tech) from any recognized University/ Institution of National Importance with a minimum of 50% marks or equivalent grade (45% Marks or equivalent grade for Scheduled Caste/ Scheduled Tribes) in any engineering discipline.<br><br>OR<br><br>Master's degree in Science or Master's degree in Computer Applications (with Physics & Mathematics at Bachelor's level) or Master's degree in Computer Science (with Physics and Mathematics at Bachelor's Level).<br><br>b) UG + 2 years industry experience / Research experience in a research lab</td></tr>
</table>

| | | |
|---|---|---|
| 6. | **SELECTION PROCEDURE:** | **Selection is based on**<br><br>a) Min 2 domain-specific publications in reputed peer-reviewed journals and demonstrated research experience at the UG level. The personal interview panel will review this criterion. The final decision will be based entirely on the discretion of the Dean, Faculty of Engineering.<br><br>**OR**<br><br>A single patent published in the previous three years in the domain-specific area. The personal interview panel will review this criterion. The final decision will be based entirely on the discretion of the Dean, Faculty of Engineering.<br><br>**Category**<br><br>Full-time student (working on project offered by SIU supervisors)<br>A candidate who wishes to work for M. Tech. (Engineering Design) degree on full time (including project staff working in sponsored projects being carried out at the Institute) should apply in the prescribed form on or before due dates to be announced once every year.<br><br>**Admission Procedure**<br><br>a. The list of available projects with clear objectives and concept note will be collected from the Faculty of Engineering, SIU supervisors well in advance. Every supervisor will require to announce the vacancies under them (Full-time on specific project or part-time for industry-sponsored projects along with their specific domain details) at the beginning of the session. After scrutiny, the available projects will be advertised along with the registration and application form via various platforms by November 2021.<br>b. Applications will be invited by open advertisement in all leading newspapers/ local announcement, Faculty of Engineering, SIU and SIU websites for all categories of candidates in Nov-Dec 2021. The list of available projects will also be advertised. Full-time candidates must choose the project of their interest/expertise, contact the corresponding supervisor and specifically apply for it while completing the form. For part-time candidates (either industry project or individual project), the tentative project title/area in consultation with an industry/research lab mentor must be provided. For part time (non-industry) candidate, the candidate must contact the supervisor in area of interest and discuss possible project idea.<br>c. The evaluation will consist of combined entrance test (50 marks) and a personal interview (50marks). The short-listed candidates will be called for interview to be conducted online/offline mode on a pre-announced date. |

(i) **Entrance examination** will be common to all the candidates irrespective of their discipline/project chosen/industry they hail from. It will consist of the MCQ based test consisting of topics from research methodology, aptitude and basic mathematics. GATE qualified (validity 2 years)/ UGC NET qualified (validity 2 years) candidates are exempted from entrance test and will be directly called for the personal interview.

(ii) **Personal Interview**: Short-listed candidate will be interviewed by a panel consisting of experts in specific project/research area and a supervisor who has listed the project. The candidate will be required to prepare a research proposal in consultation with the concerned supervisor, approximately three pages long that sets out their research aims, context and intended methods in a specific area.

(iii) The merit list will be declared based on the combined marks of entrance exam and personal interview. For GATE/NET qualified candidates exempted from the entrance test, the weightage out of 50 will be assigned as per their GATE/NET score (pro-rata) and remaining 50 marks based on personal interview.

**Admission:**

a. Candidates whose selection is approved based on the written test and personal interview will be admitted to M.Tech. (Engineering Design) By Research programme after payment of prescribed fees.

b. After the interview, a provisional admission letter will be issued to the selected candidates along with finance guidelines. The selected students have to make the payment within the specified time period. Otherwise the seat will be offered to the next merit student.

c. Ordinarily, a candidate whose registration for M.Tech. (Engineering Design) By Research degree has been cancelled for any reason, will not be eligible for re-registration for a period of three years. However, based on the merits of the individual case, and taking into consideration any special circumstances, a candidate may be considered for re-registration.

| | | |
|---|---|---|
| 7. | **MEDIUM OF INSTRUCTIONS:** | English |
| 8 | **PROGRAMME PATTERN :** | Semester |
| 9. | **SUBJECTS & SPECIALIZATION:** | 1) Department of Civil Engineering<br>(i) Environmental engineering<br>(ii) Geoinformatics and geoscience<br>(iii) Water resource engineering<br>(iv) Transportation Engineering<br>2) Department of Computer Science Engineering<br>(i) Artificial Intelligence and Machine learning<br>(ii) Natural language processing<br>(iii) Cloud computing<br>(iv) Block chain<br>(v) Cyber security<br>(vi) Internet of Things<br>3) Department of Electronics and Telecommunication<br>(i) Signal and Image processing<br>(ii) VLSI<br>(iii) Embedded system<br>(iv) Control system<br>(v) Telecommunication<br>(vi) Robotics<br>4) Department of Mechanical Engineering<br>(i) Thermal Engineering<br>(ii) Manufacturing Technology<br>(iii) Design engineering<br>(iv) Automobile engineering<br>(v) Material science<br>(vi) Robotics<br>5) Department of Applied Sciences<br>(i) Mathematics<br>(ii) Physics<br>(iii) Chemistry<br><br>These are the tentative areas, but the specialization can be offered depending on the availability of guide. Also, multidisciplinary research is encouraged and supervisor and co-supervisor from two separate departments may be permitted. |

| 10. | FEE STRUCTURE PER YEAR: | | Academic Fee | Institute Deposit | Total |
|---|---|---|---|---|---|
| | Indian Students Fee | First Year | 40,000/- | 20000/- | 60,000/- |
| | | Second Year | 40,000/- | 0 | 40,000/- |
| | International Students Fee$ | First Year | 550 | 275 | 825 |
| | | Second Year | 550 | 0 | 550 |
| 11. | METHOD OF ASSESSMENT: | All internal courses will have 100% component as internal evaluation at the institute level. All external courses will have 60% internal component and 40% component as external [University] examination. The internal and external will be separate heads of passing. | | | |
| 12. | STANDARD OF PASSING: | The assessment of the student for each examination is done, based on relative performance. Maximum Grade Point (GP) is 10 corresponding to O (Outstanding). For all courses, a student is required to pass both internal and external examination separately with a minimum Grade Point of 4 corresponding to Grade P. Students securing less than 40% absolute marks in each head of passing will be declared FAIL. The University awards a degree to the student who has achieved a minimum CGPA of 4 out of maximum of 10 CGPA for the programme | | | |
| 13. | AWARD OF DEGREE: | Master of Technology (Engineering Design) will be awarded at the end of semester IV examination by taking into consideration the performance of all semester examinations after obtaining minimum 4.00 CGPA out of 10 CGPA | | | |

**14. CLASSIFICATION OF CREDITS:**

| Semester | Generic Core | Generic Elective | Specialization Core | Specialization Elective | Open Elective | No. of Mandatory Non-Credit Course/s | Total |
|---|---|---|---|---|---|---|---|
| 1 | 9 | 10 | 0 | 0 | 0 | 0 | **19** |
| 2 | 17 | 0 | 0 | 0 | 0 | 2 | **17** |
| 3 | 20 | 0 | 0 | 0 | 0 | 1 | **20** |
| 4 | 24 | 0 | 0 | 0 | 0 | 0 | **24** |
| **Total** | **70** | **10** | **0** | **0** | **0** | **0** | **80** |

This Programme Structure is aligned with the norms laid down by the University and is approved by the Academic Council.
Hereafter changes (if any) which conform to the policy on "Curriculum Development and Review" would be permissible, subject to revision of the Programme Structure, following the specified processes.

Director - Academics

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SIU

# Symbiosis Institute of Technology, Pune
## Master of Technology (Engineering Design)
## Programme Structure 2024-26

### Annexure A

| Catalog Course Code | Course Code | Course Title | Nature | Specialization /Area/ Department | Teaching Scheme (Hours Per Week) | | | Examination Scheme (Marks) | | | | Total Credits | Total Marks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Practical | | Theory | | | |
| | | | | | L | T | Lab | CA | ESE | CA | ESE | | |
| | **Semester : 1** | | | | | | | | | | | | |
| | **Generic Core Courses** | | | | | | | | | | | | |
| TE7919 | 0701500101 | Research Methodology and Techniques | | | 1 | 0 | 0 | 0 | 0 | 30 | 20 | 1 | 50 |
| TE7917 | 0701500102 | Quantitative Techniques | | | 2 | 0 | 0 | 0 | 0 | 60 | 40 | 2 | 100 |
| T7801 | 0701500103 | Technical Presentation and Discussion | | | 1 | 0 | 0 | 0 | 0 | 50 | 0 | 1 | 50 |
| SWM03 | 0701500104 | Critical Thinking | | | 0 | 0 | 10 | 150 | 100 | 0 | 0 | 5 | 250 |
| | | **Total** | | | **4** | **0** | **10** | **150** | **100** | **140** | **60** | **9** | **450** |

| Elective –I* (Choose Any One) | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Catalog Course Code | Course Code | Course Title | Nature | Specialization /Area/ Department | Teaching Scheme (Hours Per Week) | | | Examination Scheme (Marks) | | | | Total Credits | Total Marks |
| | | | | | | | | Practical | | Theory | | | |
| | | | | | L | T | Lab | CA | ESE | CA | ESE | | |
| T7805 | 0701500105 | Project Management for Planning Evaluation | | | 5 | 0 | 0 | 150 | 100 | 0 | 0 | 5 | 250 |
| | 0701500106 | Artificial Intelligence and Machine Learning | | | 5 | 0 | 0 | 150 | 100 | 0 | 0 | 5 | 250 |
| | | **TOTAL** | | | **5** | **0** | **0** | **150** | **100** | **0** | **0** | **5** | **250** |
| **Elective – II* (Choose Any One)** | | | | | | | | | | | | | |
| T7805 | 0701500107 | BIM tools for visualization, collaboration and estimation | | | 5 | 0 | 0 | 150 | 100 | 0 | 0 | 5 | 250 |
| | 0701500108 | Deep Learning | | | 5 | 0 | 0 | 150 | 100 | 0 | 0 | 5 | 250 |
| | 0701500109 | Artificial Intelligence for Designers | | | 5 | 0 | 0 | 150 | 100 | 0 | 0 | 5 | 250 |
| | | **TOTAL** | | | **5** | **0** | **5** | **150** | **100** | **0** | **0** | **5** | **250** |
| | | | | | | | | | | | | | |

| Catalog Course Code | Course Code | Course Title | Nature | Specialization/ Area/ Department | Teaching Scheme (Hours Per Week) | | | Examination Scheme (Marks) | | | | Total Credits | Total Marks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Practical | | Theory | | | |
| | | | | | L | T | Lab | CA | ESE | CA | ESE | | |
| | Semester : 2 | | | | | | | | | | | | |
| | Generic Core Courses | | | | | | | | | | | | |
| TE7918 | 0701500201 | Research Ethics and Integrity | | | 1 | 0 | 0 | 0 | 0 | 50 | 0 | 1 | 50 |
| SWM04 | 0701500202 | Intellectual Property Rights | | | 2 | 0 | 0 | 0 | 0 | 100 | 0 | 2 | 100 |
| T7802 | 0701500203 | Reports-I | | | 0 | 0 | 4 | 60 | 40 | 0 | 0 | 2 | 100 |
| F7060 | 0701500204 | Technical Writing | | | 1 | 0 | 0 | 0 | 0 | 50 | 0 | 1 | 50 |
| T7807 | 0701500205 | Project- I (Seminar-I) | | | 0 | 0 | 14 | 210 | 140 | 0 | 0 | 7 | 350 |
| T7804 | 0701500206 | Research Publication – I | | | 0 | 0 | 8 | 120 | 80 | 0 | 0 | 4 | 200 |
| TH4788 | 0701500207 | Health and Wellness Module-I | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Mandatory Non-credit Course/s |
| TH4789 | 0701500208 | Health and Wellness Module-II | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Mandatory Non-credit Course/s |
| | | **Total** | | | **4** | **0** | **26** | **330** | **220** | **300** | **0** | **17** | **850** |

| Catalog Course Code | Course Code | Course Title | Nature | Specialization /Area/ Department | Teaching Scheme (Hours Per Week) | | | Examination Scheme (Marks) | | | | Total Credits | Total Marks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Practical | | Theory | | | |
| | | | | | L | T | Lab | CA | ESE | CA | ESE | | |
| | **Semester : 3** | | | | | | | | | | | | |
| | **Generic Core Courses** | | | | | | | | | | | | |
| T7804 | 0701500301 | Project-II (Technical Talk) | | | 0 | 0 | 8 | 120 | 80 | 0 | 0 | 4 | 200 |
| T7814 | 0701500302 | Research Presentation-I | | | 0 | 0 | 28 | 420 | 280 | 0 | 0 | 14 | 700 |
| T7802 | 0701500303 | Reports-II | | | 0 | 0 | 4 | 60 | 40 | 0 | 0 | 2 | 100 |
| SMC001 | 0701500304 | Vasudhaiva Kutumbakam | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Mandatory Non-credit Course/s |
| | | **Total** | | | **0** | **0** | **40** | **600** | **400** | **0** | **0** | **20** | **1000** |
| | **Semester : 4** | | | | | | | | | | | | |
| | **Generic Core Courses** | | | | | | | | | | | | |
| T7804 | 0701500401 | Research Publication – II | | | 0 | 0 | 8 | 120 | 80 | 0 | 0 | 4 | 200 |
| T7810 | 0701500402 | Thesis | | | 0 | 0 | 20 | 300 | 200 | 0 | 0 | 10 | 500 |
| T7808 | 0701500403 | Research Presentation-II | | | 0 | 0 | 16 | 240 | 160 | 0 | 0 | 8 | 400 |
| T7802 | 0701500404 | Reports-III | | | 0 | 0 | 4 | 60 | 40 | 0 | 0 | 2 | 100 |
| | | **Total** | | | **0** | **0** | **48** | **720** | **480** | **0** | **0** | **24** | **1200** |

**SUMMARY**

| Semester | Internal Credits | External Credits | Total Credits | Total Marks |
|---|---|---|---|---|
| 1 | 1 | 18 | 19 | **950** |
| 2 | 4 | 13 | 17 | **850** |
| 3 | 0 | 20 | 20 | **1000** |
| 4 | 0 | 24 | 24 | **1200** |
| **Total** | **5** | **75** | **80** | **4000** |