

COURSES OF STUDY 2024-25





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VISION

To contribute to India and the World through excellence in scientific and technical education and research; to serve as a valuable resource for industry and society; and remain a source of pride for all Indians.

MISSION

To generate new knowledge by engaging in cutting-edge research and to promote academic growth by offering stateof-the-art undergraduate, postgraduate and doctoral programmes.

To identify, based on an informed perception of Indian, regional and global needs, areas of specialization upon which the Institute can concentrate.

IIT DELHI

To undertake collaborative projects which offer opportunities for long-term interaction with academia and industry.

To develop human potential to its fullest extent so that intellectually capable and imaginatively gifted leaders can emerge in a range of professions.

VALUES

- Academic integrity and accountability.
- Respect and tolerance for the views of every individual.
- Attention to issues of national relevance as well as of global concern.
- Breadth of understanding, including knowledge of the human sciences.
- Appreciation of intellectual excellence and creativity.
- An unfettered spirit of exploration, rationality and enterprise.

COURSES OF STUDY 2024-2025

POSTGRADUATE PROGRAMMES RULES



INDIAN INSTITUTE OF TECHNOLOGY DELHI

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1. POSTGRADUATE DEGREE REQUIREMENTS, REGULATIONS AND PROCEDURES

1.1 Degree Requirements

The detailed degree requirements for M.Sc., M.B.A., M.Des. M.Tech., M.S. (Research), M.P.P., Ph.D. degrees and P.G. D.I.I.T. are listed in Table 1.

1.2 Continuation Requirements

The detailed requirements for continuation as a student in the respective programme for M.Sc., M.B.A., M.Des. M.Tech., M.S. (Research), M.P.P., Ph.D. degrees and P.G. D.I.I.T. are listed in Table 11. Failure to maintain the specified academic standing will result in termination of registration and the student's name will be struck off the rolls.

The maximum permitted duration of each programme will be determined in terms of the number of registered semesters. Any semester in which a student has registered for a course will be called a registered semester subject to the following:

- (a) Only the 1st and 2nd semesters of an academic year can be registered semesters. The summer semester will not be considered as a registered semester.
- (b) A semester when a student has been granted semester withdrawal or granted leave will not be considered as a registered semester.
- (c) The semester when a student is suspended from the Institute on disciplinary grounds will not be counted towards the number of registered semesters.

The summer semesters falling in between the permitted registered semesters shall be available for earning credits. After the student has registered for the maximum permissible number of registered semesters, the subsequent summer semesters will not be available for earning credits.

1.3 Minimum Student Registration for a Programme

M.Sc., M.B.A., M.Des., M.P.P. or M.Tech. programme will not be run unless the number of students registered for that programme is six or more. If the number of students left in a programme at the end of the 2nd semester is less than four, the same programme may be looked into for temporary suspension by the Board of Educational Research and Planning.

1.4 Lower and Upper Limits for Credits Registered

For students pursuing M.Sc., M.B.A., M.Tech., M.P.P. and M.S.(Research), the minimum registration requirements in a semester are specified in Table 1. These minimum credit requirements are not applicable for graduating students who require lower than the proposed minimum to graduate.

1.5 Audit Courses for PG Students

- (a) M.Tech./M.S.(R)/M.Sc./M.P.P./Ph.D. students are eligible for auditing a course at any time before completion of the programme.
- (b) A student can request for an audit grade in any course provided he/she is eligible to earn audit credits, he/she is already registered for that course and it is not a core requirement of the student's programme. The request for auditing a course should be made on or before the last date for audit requests as defined in the semester schedule.
- (c) A student earns either an NP (audit pass) or an NF (audit fail) grade for an audit course. The audit pass (NP) grade may be awarded if the student satisfies the attendance criteria specified for the course and he/she has obtained at least a 'D' grade. The course coordinator can specify a higher criterion for audit pass at the beginning of the semester. If either of these requirements is not fulfilled, the audit fail (NF) grade is awarded.
- (d) Grades obtained in an audit course are not considered in the calculation of SGPA or CGPA.
- (e) M.Tech., M.Sc., M.S.(R), M.P.P. and Ph.D. students can audit a course over and above their credit requirements, as specified by the supervisor and SRC. Audited credits do not count for graduation requirements of PG students.

(f) Non-credit core courses or core courses not considered for calculation of SGPA or CGPA for PG programmes like Ph.D., MBA, M.Tech., M.P.P., M.S. (R) should not be referred to as audit courses. These courses should be treated like similar core requirements for UG programmes such as Introduction to Programme. A student can earn either a S or Z grade in such courses. The grade S indicates successful completion. A student has to earn a S grade in such a course to meet the core requirements of a programme.

1.6 Award of D.I.I.T. to M.Tech./MBA Students

If a student after completing the maximum period available for the M.Tech. programme is not able to get the required minimum DGPA of 6.0 with the minimum required credits for the respective programme, then he/she can apply for a D.I.I.T. irrespective of whether the department/centre runs a Diploma programme or not. For the award of D.I.I.T., the student must have earned a minimum of 36 valid credits with a minimum CGPA of 5.5. The request for the award of DIIT must be made within 5 years of the date of joining the programme.

In case of M.B.A., DIIT shall be considered if at least 36 credits (9 courses from core and 3 courses from focus module) +4 compulsory audit courses, have been completed satisfactorily with a minimum CGPA of 5.5.

1.7 Regulations for Part-time Students

Normally, part-time M.Tech. and M.S. (Research) students are expected to complete the degree requirements in six semesters. In case of special circumstances, including extension of project work, the student can be allowed to continue beyond six semesters but in any case he/she cannot extend registration beyond ten semesters excluding summer semesters. In case of full-time students converting to part-time registration, the limit of six semesters will continue to apply.

1.8 Leave Rules for P.G. D.I.I.T., M.Des., M.Tech. and M.S. (Research)

A full-time P.G. D.I.I.T., M.Des., M.Tech. or M.S. (Research) student during his/her stay at the Institute will be entitled to leave for 30 days (including leave on medical grounds), per academic year. Even during mid-semester breaks, and summer and winter vacations, he/she will have to explicitly apply for leave. He/she, however, may be permitted to avail of leave only up to 15 days during winter vacation at the end of the first semester.

The leave will be subject to approval of the Head of Department/Centre/Programme/School Coordinator concerned and a proper leave account of each student shall be maintained by the Department/Centre/Programme/School Coordinator concerned.

1.9 Assistantship Requirements

A P.G. D.I.I.T., M.Des., M.Tech. or M.S. (Research) student irrespective of the source of assistantship, must attend at least 75% of classes in each course in which he/she is registered. In case his/her attendance falls below 75% in any course during a month, he/she will not be paid assistantship for that month. Further, if his/her attendance again falls short of 75% in any course in any subsequent month in that semester, his/her studentship and assistantship will be terminated. For the above purpose, if 75% works out to be a number which is not a whole number, the immediate lower whole number will be treated as the required 75% attendance.

The students are expected to put in 8 hours per week towards the work assigned by the Institute. Continuation of assistantship in a subsequent semester would be conditional to satisfactory performance of the assigned work and a SGPA of 7.0 or more (relaxed to 6.75 for SC/ST and PH students registered in M.Des., M.Tech. and M.S. (Research) programmes).

1.10 Summer Registration

Summer semester registration for PG students is admissible. M.Tech./M.S. (R)/M.Des./M.P.P. students will be allowed to register for maximum of one course (upto 4 Credits) and M.B.A./M.Sc. students upto 2 courses in the summer. Summer semester registration for PG students is permitted only when a student would graduate on completion of the courses registered in summer, and it is recommended by DRC/CRC. For projects, in case X grade is awarded in the second semester, the student would be expected to register during summer for completion of the project. Normally regular courses would not be offered during summer semester. Courses can, however, be offered by Departments/Centres/Schools for taking care of special situations subject to the availability and consent of faculty.

1.11 Master of Science (Research) Regulations

The M.S. (Research) programme will comprise of 15 credits of the course work and 36 credits of the research work. The 15 credits of course work should not include any component of minor project. In the first semester, the student has to register for a minimum of 09 and a maximum of 15 credits. In the first semester, the part-time students can only register for course work with minimum and maximum limits of 3 and 12 credits, respectively. The course work must be completed by the end of third semester; otherwise the registration of the student will stand cancelled.

The larger project component gives the student an opportunity to conduct in-depth investigation on a topic of his/her interest. The project will be monitored by the Student Research Committee (SRC) and the students will have to register for thesis (project course no. xxD895, 'xx' is department/school code) for 36 credits. An 'X' grade is awarded at the end of each semester until the project work gets completed and the thesis is written. Nominally the M.S.(R) programme is expected to take 4 semesters (excluding summer). Upon completion of project work, a thesis is written that is evaluated by one internal and one external examiner. Upon satisfactory recommendations from the examiners, the thesis defense can be conducted before a committee. Conversion to Ph.D. is also possible. For further details, see the "Rules and Regulations for Master of Science (Research) Programme" booklet.

1.12 Migration from one PG programme to another PG Programme of the Institute

M.Tech./M.S.(R) to Ph.D. M.Tech. to M.S.(R) M.S.(R) to M.Tech. > 1st Sem. & ≤ 3rd Sem. > 1st Sem. & ≤ 3rd Sem. Timing > 1st Sem. Eligibility ≥ 8.0 SGPA/CGPA & ≥ 12 credits ≥ 12 credits ≥ 12 credits Admission DRC/CRC (Evaluation) DRC/CRC (Evaluation) DRC/CRC (Evaluation) Credits Credits transfer as recommended Credits transfer as Credits transfer as by DRC/CRC recommended by DRC/CRC recommended by DRC/CRC Duration Max. 7 years from date of joining Max. 5 years from date of Max. 5 years from date of M.Tech./M.S.(R) joining M.Tech. joining M.S.(R)

Provision exists for the PG students of the Institute to move from (i) M.Tech./M.S.(R) to Ph.D., (ii) M.Tech. to M.S.(R), and (iii) M.S.(R) to M.Tech. as per details given in the table below:

Full-time M.Tech. and M.S.(R) students of IIT Delhi interested in joining the Ph.D. programme within two years of completion of their M.Tech./M.S.(R) will be granted waiver of residency period. The course work requirements can be made up by either additional credits (6 credits as per present norms) taken during their M.Tech./M.S.(R) period (over and above their minimum Degree requirements) or in the summer semester (first or second) by identifying courses. In all cases, the request for such credit transfer should be recommended by the concerned DRC/CRC/SRC as relevant to their respective Ph.D. programmes.

1.13 Doctor of Philosophy (Ph.D.) Regulations

The award of Ph.D. degree is in recognition of high achievements, independent research and application of scientific knowledge to the solution of technical and scientific problems. Creative and productive enquiry is the basic concept underlying the research work. In order to overcome any deficiency in the breadth of fundamental training or proper foundation for advanced work, special preliminary or pre-Ph.D. courses are given by each Department/Centre/School. These courses are given either by faculty members or by guest-speakers and specialists in the field of research.

1.13.1 Course requirements

Candidates admitted to non-engineering departments and having a B.Tech./M.Sc./M.A. or equivalent degree are required to complete a minimum of 12 credits. Relaxation up to 6 credits in the course work can be considered for those with an M.Phil. degree. The minimum requirement of pre-Ph.D. Course Credits/work for Ph.D. student admitted to an engineering department and having B.Tech./M.Sc. Degree is 20 credits. The minimum requirement of pre-Ph.D. Course Credits/work for Ph.D. student admitted to engineering department and having M.Tech. or equivalent Degree is 6 credits. Individual Academic Units may recommend course work requirements above the minimum requirements specified by the Institute.

Graduation requirements	s Max. Period of stay	6 sem. #	Q seg	e se H	6 sem. 10 sem.	6 sem.	6 sem. 10 sem. @
Graduatio	Valid Credits (\$)	49	2	75-81	48-54 credits	54	72 (+ 6 compulsory audit courses)
Criteria for continuation of registration		CGPA > 5.0 at the end of each semester.	 (i) The minimum acceptable performance level in any registered semester is SGPA of 6.0. (ii) If at the end of any registered semester, the SGPA is less than 6.0 then the student will be issued a warning letter and placed on probation: a copy of the warning letter will be sent to the parents. The Chairperson DRC / CRC shall assess the feasibility of completing degree requirements and identify remedial measures for problems leading to poor performance. (iii) If a student is on probation and his/her academic performance is below the minimum acceptable level in the following registered semester then his/her registration will be terminated. (iv) The registration of any student will be limited to 1.25 times the average earned credits of the previous two registered semesters, subject to a minimum of 12 credits and a maximum of 17 credits. 	 (i) The minimum acceptable performance level in any registered semester is SGPA of 5.0. (ii) If at the end of any registered semester, the SGPA is less than 5.0 then the student will be issued a warning letter and placed on probation: a copy of the warning letter will be sent to the parents. The Chairperson DRC/CRC shall assess the feasibility of completing degree requirements and identify remedial measures for problems leading to poor performance. (iii) If a student is on probation and his/her academic performance is below the minimum acceptable level in the following registered semester then his/her registration will be terminated. (iv) The registration of any student will be limited to 1.25 times the average earned credits of the previous two registered semesters, subject to a minimum of 15 credits and a maximum of 26 credits. 	 The minimum acceptable performance level in any registered semester is SGPA of 6.0. If at the end of any registered semester the SGPA is less than 6.0, then the student will be issued a warning letter and placed on probation; a copy of the warning letter will be sent to Chairperson DRC/CRC. The Chairperson DRC/CRC shall assess the feasibility of completion decrements and identify remodel more used for set of the provident for probleme location. 	to poor performance. (iii) If a student is on probation and his/her academic performance is below the minimum	 acceptable level in the following registered semester then his/her registration will be terminated. (iv) The registration of any student shall be limited to 1.25 times the average earned credits of the previous two registered semesters, subject to a minimum of 09 credits and a maximum of 15 credits for full time students.
Registration limits (Per semester)		Minimum 12 credits Maximum 20 credits	Minimum 12 credits Maximum 17 credits	Minimum 12 credits Maximum 26 credits	Minimum 09 credits Maximum 15 credits Minimum 3 credits Maximum 12 credits	Minimum 09 credits Maximum 15 credits	Same as M.Tech. full time Same as M.Tech. part time
Degree/Diploma		P.G. D.I.I.T. (Naval Construction)	Master of Public Policy	M.Sc., Chemistry M.Sc., Cognitive Science M.Sc., Economics M.Sc., Mathematics M.Sc., Physics	M.Tech., Full Time M.Tech., Part Time	M. Des.	M.B.A., Full Time M.B.A., Part Time

Image: Second be Second and may registered semester, the SGPA is less than 7.0, then the student should be second and second the Charapterson DRC/GSC shall assess the resulting effect and placed on probability of completing degree requirements and identify remedial measures for probability of completing degree requirements and identify remedial measures for probability of completing degree requirements and identify remedial measures for probability of completing degree requirements and identify remedial measures for probability of completing degree requirements and identify remedial measures for probability of completing degree requirements and identify remedial measures for probability of completing degree requirements and identify remedial measures for probability of the student is on probability of completing degree requirements and identify remedial measures for probability of the formance is below the minimum acceptable level in the following registered semester then his/her registration will be transmitted. Ph.D. Ph.D. (v) During the research work period, each unsatisficatory performance grade would entail a varing and two consecutive warmings would result in termination of registration. Ph.D. Ph.D. (v) During the research work is DGFA within is catalled on origistration. Ph.D. Ph.D. Ordinances and Regulation is a prescribed by in the maskinum perimated on completion of per Ph.D. course work in terms of Degree of the related within the maximum perimeter of the completion of per transformed readility of the SGPA within is catalled on origistration. Ph.D. Ph.D. (v) During the research work is DGFA within its catalled on origistration. Ph.D. Ph.D. (v) Student with	M.S. (Res.) Full Time	See note +	 I he minimum acceptable performance level in any registered semester is SGPA of 7.0 or more. 	is SGPA of 7.0	o'i incluaing i nesis.	0.000
(ii) If a student is on probation and his/her academic performance is below the minimum acceptable level in the following registered semester then his/her registration will be terminated. M.S. (Res.) Part Time See note ++ M.S. (Res.) Part Time See note ++ (iv) During the research work period, each unsatisfactory performance is below the minimum terminated. (iv) During the research work period. each unsatisfactory performance grade would entail a warning and two consecutive warnings would result in termination of registration. Ph.D. For details please refer to 0.10 During the research work is calculated on completion of pre-Ph.D. course work in terms of Degree 0.10 During the research work is calculated on the basis of the best valid credits 0.10 dimances and Regulations as prescribed by which is calculated on the basis of the best valid credits 0.10 dimances and Regulations are Ph.D. course work is DGPA of 7.5 or more. within the maximum permissible period is 18 and 24 months respectively for full-time and part time students. (i) Registration of a Ph.D. course work work if the SCPA has the course work went if the credit requirement of or completion of pre-Ph.D. course work went if the credit net course work went if the credit requirement of or completion of per-Ph.D. course work went if the SCPA is a matubin. (ii) In the subsequent semesters, the student will be allowed to continue the course work event if the student will be allowed to continue the course work event if the credit requirement semesters, the student must maintain a CGPA of more than 7.0 to continue registration.			If at the should should the fea probler	ien the student e warning letter XC shall assess I measures for		
M.S. (Res.) Part Time See note ++ (iv) During the research work period, each unsatisfactory performance grade would entail a warning and two consecutive warnings would result in termination of registration. Ph.D. For details please refer to Ordinances and Regulations (i) A student will be evaluated on completion of pre-Ph.D. course work in terms of Degree Grade Point Average (DGPA) which is calculated on the basis of the basis value completion of pre-Ph.D. Course work in terms of Degree Grade Point Average (DGPA) which is calculated on the basis of the basis value could write the advisement for completion of the basis of the basis value could write the prediment of the completion of the basis of the bas				v the minimum stration will be		
Ph.D. For details please refer to Ph.D. (i) A student will be evaluated on completion of pre-Ph.D. course work in terms of Degree Grade Point Average (DGPA) which is calculated on the basis of the best valid credits as prescribed by the Department/Centre/School. The requirement for completion of pre-Ph.D. course work is DGPA of 7.5 or more. within the maximum permissible period i.e 18 and 24 months respectively for full-time and part time students. (ii) Registration of a Ph.D. student will be terminated at the end of lst Semester on account of performance in the course work if the SGPA is less than 6.0. In case the SGPA is equal to or more than 6.0, the student will be allowed to continue the course work even if the credit requirements as recommended by the SRC have been completed in the first semester itself. (iii) In the subsequent semesters, the student must maintain a CGPA of more than 7.0 to continue registration.	M.S. (Res.) Part Time	See note ++	(iv) During the research work period, each unsatisfactory performance grads warning and two consecutive warnings would result in termination of reg	e would entail a jistration.		10 sem. ***
 (ii) Registration of a Ph.D. student will be terminated at the end of Ist Semester on account of performance in the course work if the SGPA is less than 6.0. In case the SGPA is equal to or more than 6.0, the student will be allowed to continue the course work even if the credit requirements as recommended by the SRC have been completed in the first semester itself. (iii) In the subsequent semesters, the student must maintain a CGPA of more than 7.0 to continue registration. 	Ph.D.	For details please refer to Ph.D. Ordinances and Regulations	Ξ	erms of Degree est valid credits completion of missible period	12 for B.Tech./M.Sc., 6 for M.Tech. or equivalent; A Deptt./Centre / School may prescribe	14 sem.
(iii) In the subsequent semesters, the student must maintain a CGPA of more than 7.0 to continue registration.	5			ster on account se the SGPA is urse work even leted in the first	additional credits + Thesis	
			(iii) In the subsequent semesters, the student must maintain a CGPA of m continue registration.	ore than 7.0 to		

- \$ Detailed break-up of core, elective and open category courses are given in the latter pages of this document.
- In the first semester the student has to register for a minimum of 9 and a maximum of 15 credits of course work only. In the subsequent 3-semesters the student shall complete the research work and the course work remaining, if any. +
- In the first two semesters the part-time student shall register only for the course work with the minimum and maximum limits of 3-15 credits. The research work and the remaining course work, if any, shall be completed in the remaining 4 semesters. However, the course work must be completed within the first 4-semesters of registration. ‡
- The 10 Semester rule for part-time M.S. (Research) students will be applicable only to those who have joined initially as part-time students. For students converting from full-time to part-time the maximum stay limit of 6 semesters will be applicable, subject to recommendations of DRC/CRC/SRC and approval by Dean, Academics. + + +
- The 10 Semester rule for part-time M.Tech. students will be applicable only to those who have joined initially as part-time students. For students converting from full-time to part-time, the maximum stay limit of 6 semester will be applicable. 0
- # The summer semester will not be considered as a registered semester.

M.Tech. or equivalent degree holders admitted to Ph.D. are required to complete a minimum of 6 credits. The Departments /Centres/Schools may stipulate a larger number of credits in general or in specific cases. The course requirement will be determined by the Department/Centre/School Research Committee (DRC/CRC/SRC) on the recommendations of the supervisor after due consideration of the background of the student in relation to the proposed topic of research. These courses can be prescribed from existing M.Tech. courses and/or from special pre-Ph.D. courses including laboratory, seminar, foreign language, etc. Normally, no independent study course will be allowed for Ph.D. students. The pre-Ph.D. course credits that contribute to the DGPA of the Research Scholar can only be earned from regular lecture courses. In exceptional cases for Research Scholars who join the Ph.D. programme after B.Tech. (or equivalent) degree, a maximum of one course may be allowed having laboratory or programming content only. Such an exception would be allowed by the Dean, Academics on recommendation of the SRC of the student and the corresponding DRC/CRC.

Further, in case a Ph.D. student having completed 15 credits is unable to complete the research at the Ph.D. level for any reason whatsoever, he/she may be allowed to complete M.S. (Research) degree requirement as per Institute rules.

A student shall be formally registered/admitted to the candidacy of Ph.D. degree only after he/she has cleared the comprehensive examination. Students would be permitted to take the comprehensive examination only after they have submitted a research plan and have completed the course work (including compulsory audit course - HSL 800: Research Writing). Full-time and part-time students must clear the comprehensive examination within a period of 18 months and 24 months, respectively, from the date of joining. A maximum of two chances will be given to any student to clear the comprehensive examination. Every student, after having completed the comprehensive examination must formally register for the candidacy on a form obtainable from the Academic Section.

1.13.2 Time limit

In addition to the information in Table 1, the time limits shown in Table 2 apply for Ph.D. work.

S.No.		Candida	te's qualification					
		M.Tech. or equivalent	B.Tech./M.Sc. or equivalent					
1	Lim	imits for Registration						
1.1	Minimum period of registration	2 years	3 years (can be reduced to 2 years with the approval of Senate)					
1.2	Normal maximum period of registration	10 Semesters	10 Semesters					
1.3	Extended maximum period of registration	14 Semesters	14 Semesters					
2	Conversion from Full-time to Part-time Registration	Comprehensive examina Academics	ation with the approval of Dean					

Table 2: Time limits for students registered under Ph.D. Programme

1.13.3 Leave regulations

(a) Leave during course work

A full-time Ph.D. student, during his/her stay at the Institute will be entitled to leave for 30 days, including leave on medical grounds, per academic year. Even during mid-semester breaks, and summer and winter vacations, he/she will have to explicitly apply for leave. He/she, however, may be permitted to avail of leave only up to 15 days during winter vacation at the end of the first semester.

Leave beyond 30 days in an academic year may be granted to a research scholar in exceptional cases subject to the following conditions:

- (i) the leave beyond 30 days will be without Assistantship/Scholarship, and
- (ii) such an extension of up to additional 30 days will be granted only once during the programme of the scholar.

In addition, a Ph.D. student who has completed his/her course work may be granted leave on medical grounds up to 10 days per academic year.

Women research scholars will be eligible for Maternity Leave with assistantship for a period not exceeding 180 days once during the tenure of their Ph.D. programme.

The leave may be subject to the approval of the Head of Department/Centre/School/Programme Coordinator concerned on the recommendation of the Supervisor; and a proper leave account of each research scholar shall be maintained by the Department/Centre/School/Programme Coordinator concerned.

1.13.4 Attendance requirements for assistantship

Any full time Ph.D. student receiving assistantship or scholarship irrespective of the source while pursuing course work, must attend at least 75% of classes in each course in which he/she is registered. In case his/her attendance falls below 75% in any course during a month, he/she will not be paid assistantship for that month. Further, if his/her attendance again falls short of 75% in any course in any subsequent month in that semester, his/her studentship and assistantship will be terminated. A research scholar after having completed the course work must attend to his/her research work on all the working days and mark attendance except when he/she is on duly sanctioned leave. The requirement of 75% attendance will apply as above, on daily attendance except in the cases where longer leave has been duly sanctioned within the leave entitlement of the student. For the above purpose, if 75% works out to be a number which is not a whole number, the immediate lower whole number will be treated as the required 75% attendance.

All scholars who are offered assistantship are expected to put in 8 hours per week towards the work assigned by the Institute. Continuation of assistantship in the subsequent semester would be conditional, subject to satisfactory performance in the work assigned.

The above holds for Prime Minister's Research Fellowship (PMRF) scholars as well. Additional rules governing PMRF scholars may be announced from time to time.

1.13.5 Further regulations governing Ph.D. students

The Ph.D. degree of the Institute may be conferred on a candidate who fulfills all the requirements detailed in the Ordinances and other rules, approved by the Senate. Some of the important regulations are given below:

- (i) Applications for Ph.D. registration, i.e., for entry to a course of study and research leading to Ph.D. degree must be made to the Board of Academic Programmes (BAP) on the approved form. The date of registration is normally the date of joining the programme. However, in exceptional cases the date of registration may be preponed by a maximum of 6 months by the BAP if it is convinced that the candidate has spent adequate amount of time on research earlier.
- (ii) The academic programme of all the Ph.D. candidates in a Department/Centre/School will be coordinated by the DRC/CRC/SRC appointed by the BAP.
- (iii) The supervisor shall be a full-time member of the academic staff of the Institute. The supervisor(s) shall be appointed within three months of joining the programme. For this, Ph.D. candidates must fill up the required portion of the prescribed form, following which supervisor(s) must fill up the required portion, and the Student Research Committee (SRC) must be finalized by the respective DRC/CRC/SRC, of the Academic Unit. This process must be completed within three months of the Ph.D. candidate's date of first registration. If necessary, the Board of Academic Programme on the recommendations of the Supervisor through the DRC/CRC/SRC, may appoint Joint Supervisor(s) not exceeding two from inside or outside the Institute. Normally, there should not be more than two supervisors for a candidate from within the Institute. Appointment of any Joint Supervisor would not be permitted after a lapse of eighteen months from the date of registration of the candidate, except in cases when none of the supervisors is in the Institute for a year or more at a stretch.
- (iv) The DRC/CRC/SRC shall meet from time to time and review the progress of each candidate in the course work, as well as research, by any means, including oral examination of the candidate, if necessary, and recommend, after due consultation with the supervisor(s), such steps to the candidate as are necessary to improve his/her performance.
- (v) The progress of each candidate will be monitored by the DRC/CRC/SRC. For this purpose, the following procedures will be followed:
 - (a) Ph.D. research work will be compulsorily given a course number, DTD 899 (Doctoral Thesis) for all candidates across the Institute.
 - (b) The DRC/CRC/SRC Secretary/Ph.D. Coordinator will be coordinating the collection of progress reports written and signed by the scholars and forwarded by the supervisors every semester.
 - (c) The supervisor(s)/SRC/DRC/CRC will evaluate the progress of the student every semester.
 - (d) X' grade will be awarded if the progress is 'satisfactory' in that semester.
 - (e) If the progress is 'unsatisfactory', 'U' grade will be awarded. For the first appearance of 'U' grade, a warning would be issued to the candidate by Dean, Academics. If his/her performance does not improve after warning, the assistantship may be withheld.

- (f) If there are two consecutive 'U' grade (in consecutive semesters), the registration will stand terminated.
- (g) Submission of progress report should continue till submission of thesis.
- (h) Like all other courses, the grades for DTD 899 will be discussed in the Department/Centre/School as per the semester schedule.

The above process will continue till the thesis is submitted.

- (vi) The candidate may submit the thesis at any time provided that:
 - (a) He/she has completed the minimum period of registration including any extension prescribed by the Board of Academic Programmes (BAP).
 - (b) He/she has completed the course work requirement as prescribed by the DRC/CRC/SRC with DGPA not below 7.50 and has also cleared the comprehensive examination.
 - (c) He/she has submitted at least two months in advance, the title and a synopsis of the thesis. The Synopsis along with the list of examiners suggested by the supervisor needs to be approved by the DRC/CRC/SRC and then forwarded to Dean, Academics.
- (vii) The thesis shall normally be written in English in the specific format and shall contain a critical account of the candidate's research. It should be characterized by a discovery of facts, a fresh approach towards interpretation of facts and theories or significant contribution to knowledge of design or development, or a combination of them. It should bear evidence of the candidate's capacity for analysis and judgement and also his/her ability to carry out independent investigation, design or development. A thesis should normally be supplemented by published work. No part of the thesis or supplementary published work shall be submitted for the award of any other Degree/Diploma. Normally, three copies of thesis in soft cover have to be submitted in the format prescribed by the Institute. In case of joint supervision, four copies of the thesis are required to be submitted.
- (viii) On receipt of the title and synopsis of a thesis, the Dean, Academics will appoint a Board of Examiners for each candidate. The Board will consist of one (or two) internal examiner(s), normally the supervisor(s), and two external examiners, one from within India and one from abroad who shall be an expert in the subject of thesis. These external examiners shall be chosen from a list of eight, to be recommended by the supervisor(s) through the DRC/CRC/SRC while forwarding the title and synopsis of the thesis. The candidate will be required to submit a fresh synopsis if more than 9 months elapse from the synopsis submission date to the thesis submission date.
- (ix) Each Examiner will submit a detailed assessment report recommending to the BAP, one of the following courses of action:
 - (a) that the thesis be deemed satisfactory and that the candidate may defend his/her thesis orally before a committee constituted for the purpose and any members of the faculty and research students who wish to be present.
 - (b) that the candidate may submit a revised thesis before the expiry of a specific period. In the normal circumstances, he/she may submit the revised thesis within a period of one year from the date of communication in this regard from the Dean, Academics. However, in exceptional circumstances, this period may be extended by the BAP by another year: the total revision time irrespective of the number of revisions allowed will not exceed a period of two years.
 - (c) that the thesis be rejected outright.

In the event of disagreement between the external examiners, the BAP may, as a special case, appoint another external examiner, if the merit of the case so demands. The examiner will report independently to the BAP.

- (x) The oral defense of the thesis shall be conducted by a committee consisting of the internal examiner(s) and one external examiner. If none of the external examiners is available for the conduct of the oral defense, an alternative external examiner shall be appointed by the BAP for this purpose only.
- (xi) On the completion of all stages of the examination, the Oral Defense Committee shall recommend to the BAP one of the following courses of action:

- (a) that the degree be awarded.
- (b) that the candidate should be examined on a further occasion in a manner they shall prescribe.
- (c) that the degree shall not be awarded.

- In the case of (a) above, the Oral Defense Committee shall also provide to the candidate a list of all corrections and modifications, if any, suggested by the examiners.
- (xii) The degree shall be awarded by the Senate, provided that:
 - (a) the Oral Defense Committee, through the BAP so recommends.
 - (b) the candidate produces a 'no dues certificate' from all concerned in the prescribed form and gets it forwarded along with the report of the Oral Defense Committee; and
 - (c) the candidate has submitted two hard cover copies of the thesis, after incorporating all necessary corrections and modifications including appropriate IPR notice. The hard-bound copies of the Ph.D. thesis, submitted after the viva-voce examination, must contain the appropriate copyright certificate in the beginning of the thesis, on a separate page on the left side. One of these copies is for the Department/Centre/School Library and the other is for the Central Library. A softcopy of the thesis has been submitted to the Central Library.
 - (d) A Hindi translation of the thesis abstract is to be submitted as part of final submission (after examiner reports are received). The students can seek assistance from Hindi Cell in this regard.
- (xiii) If a member of the academic staff, who is registered for the degree, leaves the Institute before the minimum period of registration is completed, he/she will be permitted to submit his thesis in due course, provided that:
 - (a) a substantial part of the research has been completed at the Institute; and
 - (b) any additional work required can be adequately supervised.
- (xiv) A member of the academic staff who has commenced his research before joining the Institute may, at the discretion of the BAP and on the recommendation of the Supervisor through the DRC/CRC/SRC concerned, be permitted to include in his period of registration, part or all of the time spent on research before joining the Institute, up to a maximum of one year.
- (xv) A member of the non-academic staff of the Institute who satisfies eligibility qualifications may be considered for admission to the degree as a part-time candidate provided his/her application is duly approved by the Director of the Institute.

2. POSTGRADUATE PROGRAMME STRUCTURES

Master of Science in Chemistry Department of Chemistry

The overall credits structure

Category	PC	PE	OC	Total
Credits	60	9	6	75

Program Core					Program Electives
CML511 Quantum Chemistry	3	0	0	3	CML661 Solid State Chemistry 3 0 0 3
CML512 Stereochemistry & Organic Reaction	3	0	0	3	CML662 Statistical Mechanics & Molecular 3 0 0 3
Mechanisms					Simulation Methods
CML513 Photochemistry & Pericyclic Reactions	3	0	0	3	CML663 Selected Topics in Spectroscopy 3 0 0 3
CML514 Main Group Chemistry	3	0	0	3	CML664 Group Theory & Spectroscopy 3 0 0 3
CML515 Instrumental Methods of Analysis	3	0	0	3	CML665 Biophysical Chemistry 3 0 0 3
CML521 Molecular Thermodynamics	3	0	0	3	CML671 Supramolecular Chemistry 3 0 0 3
CML522 Chemical Dynamics & Surface Chemistry	3	0	0	3	CML672 Recent Trends in Organic Chemistry 3 0 0 3
CML523 Organic Synthesis	3	0	0	3	CML673 Bio-organic and Medicinal Chemistry 3 0 0 3
CML524 Transition and Inner Transition Metal Chemistry	3	0	0	3	CML674 Physical Methods of Structure Determination 3 0 0 3
CML525 Basic Organometalic Chemistry	3	0	0	3	of Organic Compounds
CML526 Structure & Function of Cellular Biomolecules	3	0	0	3	CML675/740 Chemistry of Heterocyclic Compounds 3 0 0 3
CML631 Molecular Biochemistry	3	0	0	3	CML681 Physical Methods in Inorganic Chemistry 3 0 0 3
CMP511 Lab-I	0	0	4	2	CML682 Inorganic Polymers 3 0 0 3 CML683 Applied Organometallic Chemistry 3 0 0 3
CMP512 Lab-II	0	0	4	2	CML683Applied Organometallic Chemistry3003CML684Bio-inorganic Chemistry3003
CMP521 Lab-III	0	0	4	2	CML691 Microbial Biochemistry 3 0 0 3
CMP522 Lab-IV	0	0	4	2	CML692 Food Chemistry and Biochemistry 3 0 0 3
CMD631 Project Part-I	0	0	12	26	CML693/739 Applied Biocatalysis 3 0 0 3
CMD641 Project Part-II	0	0	20	0 10	
Total Credits				60	
. Star er oute					

Sem.				Course					Lecture courses	C	ontac	t h/w	eek	Credits
Sem.			(Number, A	bbreviated T	ïtle, L-T-P, Cr	edits)			Lect	L	Т	Ρ	Total	Cre
I	CML511 Quantum Chemistry (3-0-0) 3	CML512 Stereo- chemistry & Organic Reaction Mechanisms (3-0-0) 3	CML513 Photochemistry & Pericyclic Reactions (3-0-0) 3	CML514 Main Group Chemistry (3-0-0) 3	CML515 Instrumen- tal Methods of Analysis (3-0-0) 3		CMP511 Lab-I (0-0-4) 2	CMP512 Lab-II (0-0-4) 2	5	15	0	8	23	19
п	CML521 Molecular Thermo- dynamics (3-0-0) 3	CML522 Chemical Dynamics & Surface Chemistry (3-0-0) 3	CML523 Organic Synthesis (3-0-0) 3	CML524 Transition and Inner Transition Metal Chemistry (3-0-0) 3	CML525 Basic Organo- metalic Chemistry (3-0-0) 3	CML526 Structure & Function of Cellular Bio- molecules (3-0-0) 3	CMP521 Lab-III (0-0-4) 2	CMP522 Lab-IV (0-0-4) 2	6	18	0	8	26	22
Summ	er													
III	CML631 Molecular Bio- chemistry (3-0-0) 3	PE-1 (3-0-0) 3	PE-2 (3-0-0) 3	PE-3 (3-0-0) 3	CMD631 Project Part-I (0-0-12) 6				4	12	0	12	24	18
IV	OE-1 (3-0-0) 3	OE-2 (3-0-0) 3	CMD641 Project Part-II (0-0-20) 10						2	6	0	20	26	16

Total = 75

Master of Science in Cognitive Science

Department of Humanities and Social Sciences

The overall credits structure

Cate	gory	PC	PE	ос				Total						
Cre	dits	60	9	6				75						
Program	Core								HUL763	Cognitive Psychology	3	0	0) 3
HSL521		tion to Cognitive	Science		3	0	2	4		Transformational Theories of Language		0) 3
ISE521		dent Study in C		nce		2			HUL743	0 0		0) 3
100021	(Bridge of		egintre eele		Ũ	-	Ũ	-		Assessment	Ū	Ũ		
ISL522	Basics o	f Programming f	for Cognitive S	Science	1	0	2	2	HUL745	Psycholinguistics	3	0	0) 3
ISL541	Languag	e in the Mind	-		3	1	0	4	HSL727	Advances in Social Cognition	3	0	2	2 4
ISL561		e Neuroscience			3	0	2	4	HSL767	Emotion and Decision making	3	0	0) 3
ISL621		tical Foundations		Science			0		HSL768	Judgment and Decision Making	3	0	0) 3
ISL622		ation and Cogni			-	0	_	4	HSL769	Number Cognition	3	0	2	2
ISL651	•	hy of Mind and	•		-	-	0	-	HSL780	Social and Cultural Construction of Emotions	3	0	0) 3
ISL661	•	e Processes: Fr				0		4	HSL722	Data Analysis for Behavioral Research		0		
ISL721		h Methods in C	0			0		3	1102122	using R	Ŭ	Ŭ	-	
ISL747		e Computations a		hitecture			0		HSL723	Advanced Computational Methods	0.	50	2	, ,
ISP700		op on Scientific	0		0	_	-	2	HSL724	Advanced Experimental Methods	0.			
ISD621		e Science Proje				0		26 39	HSL725	Advanced Qualitative Methods	0.			
HSD622 HSD623	0	e Science Proje			-	0 0		2	HSL748	Natural Language Understanding		0		
1SD623		ject in Cognitive e Science Lectu			-	0	-	_	HSL749	Optimality Theory and Harmonic Grammar	-	0	-	
ISP 522		e Science Lectu			-	-	-	2	HSL821	Eye Movement and Cognitive Processes	-	0	-	
101 020	Total Cr		lie Genes-II		0	0	-	2 60	HSL822	Advanced Data Analysis for Behavioral		0	_	2 4
	Total Cr	ealts						60	TISL022	Research using R	5	0	2	. 4
•rogram	Elective	s							HSL844	Computational Models of Meaning	3	0	0) 3
ISL726	Culture a	and Cognition			3	0	0	3	HUL843		2	1	0) 3

Sem.			Course				Lecture courses	C	ontac	t h/w	eek	Credits
Sem.		(Numb	er, Abbreviated T	itle, L-T-P, credits)		Lect	L	Т	Ρ	Total	Cre
			Programme	Core								
I	HSL521 Introduction to Cognitive Science (3-0-2) 4	HSS521 Independent Study in Cognitive Science (Bridge course) (0-2-0) 2	HSL522 Basics of Programming for Cognitive Science (1-0-2) 2	HSL541 Language in the Mind (3-1-0) 4	HSL561 Cognitive Neuroscience (3-0-2) 4	HSL721 Research Methods in Cognitive Science (1-0-4) 3	5	11	3	10	24	19
		Program	me Core	•	Programme Ele	ective						
п	HSL621 Mathematical Foundations for Cognitive (2-1-0) 3HSL622 Computation and Cognition (3-0-2) 4HSL651 Philosophy of Mind and Cognition (3-1-0) 4HSL661 Cognitive Processes: From Labs to Fields (3-0-2) 4		Cognitive Processes: From Labs to Fields		PE-1 (3-0-0) 3	5	11	2	4	17	18	
Summe	er		roject in Cognitive Science (0-0-4) 2									
	Programme Core				Open Elective	Programme Elective						
III	HSL747 Language Computations and Mental Architecture (3-0-0) 3	HSP522 Cognitive Science Lecture Series-I (0-0-4) 2	HSP700 Workshop on Scientific Writing (0-2-0) 2	HSD621 Cognitive Science Project-I (0-0-12) 6	OE-I (3-0-0) 3	PE-2 (3-0-0) 3	3	9	2	16	27	19
		Programme (Core		Open Elective	Programme Elective						
IV	HSD622 Cognitive Science (0-0-18) 9	Project II	HSP523 Cognitive Science L (0-0-4) 2	ecture-II	OE-II (3-0-0) 3	PE-3 (3-0-0) 3	2	6	0	22	28	17

Total = 75

Master of Science in Economics Department of Humanities and Social Sciences

The overall credits structure

Category	PC	PE	OC	Total
Credits	60	9	6	75

Program Core				MTL732	Financial Mathematics	3	-	0	-
HSL511 Microeconomics-I	3	1 0	4	MTL733	Stochastic of Finance	3	-	0	-
HSL512 Macroeconomics-I	3	1 0	4	MTL766	Multivariate Statistical Methods	3	0	0	3
HSL513 Probability and Statistics for Economics	3	0 2	4	MTL843	Mathematical Modeling of Credit Risk	3	0	0	3
HSL516 Mathematical Economics	3	1 0		MTL505	Computer Programming	3	1	0	4
HSL514 Issues in Development	3	0 0	3	MTL508	Mathematical Programming	3	1	0	4
HSL611 Microeconomics-II	3	1 0	4	COL774	Machine Learning	3	0	2	4
HSL612 Macroeconomics-II	3	1 0	4	ELL885	Machine Learning for Computational Finance	3	0	0	3
HSL613 Econometrics	3	0 2	4	COL671	Principles of Artificial Intelligence	3	0	2	4
HSL614 Development Economics		0 0		Develop	nent Economics Track				
HSL515 Indian Economy	3	0 0	3		Labour Economics	3	0	0	3
HSP612 Research Seminar in Economics	1	0 4	3	HSL817				0	
HSP511 Economics Lab	0	0 8	4	HSL814	Research Methods in Economics	1	0		2
HSP611 Advanced Economics Lab	0	0 8	4	HSL717	Perspectives on Indian Economy	3	0		3
HSP520 Research Project in Economics-I	0	0 6	3	HSL718	Political Economy of Development	3	-	0	•
HSP620 Research Project in Economics-II	0	0 1	89	HSL775	Agrarian Societies and Rural Development	3		0	-
Total Credits			60	HSL874		3		0	
				HSL878		3			3
Program Electives				HSL783		3		õ	3
Microeconomics Track				HSL701	Introduction to Science and Technology	•	50	-	1.5
			2	TIGETOT				v	1.0
HSL816 Game Theory	3	0 0	3						
		0 0 0		HSI 702	Policy Studies	1 {	50	0	15
HSL816 Game Theory	3		3	HSL702	Policy Studies Approaches to Science and Technology	1.{	50	0	1.5
HSL816 Game Theory HSL815 Theory of Market Design	3 3	0 0	3 3		Policy Studies Approaches to Science and Technology Policy Studies				
HSL816 Game Theory HSL815 Theory of Market Design HSL716 Industrial Economics HSL813 Foundations of Decision Theory Macroeconomics Track	3 3	0 0	3 3	HSL702 HSL703	Policy Studies Approaches to Science and Technology				
HSL816Game TheoryHSL815Theory of Market DesignHSL716Industrial EconomicsHSL813Foundations of Decision Theory	3 3	0 0 0 0 0 0 0	3 3 3		Policy Studies Approaches to Science and Technology Policy Studies Perspectives on climate change: Implications	3	0		3
HSL816 Game Theory HSL815 Theory of Market Design HSL716 Industrial Economics HSL813 Foundations of Decision Theory Macroeconomics Track	3 3 3 3	0 0 0 0 0 0 0	3 3 3 3	HSL703	Policy Studies Approaches to Science and Technology Policy Studies Perspectives on climate change: Implications for policy	3	0 0	0	3 4
HSL816 Game Theory HSL815 Theory of Market Design HSL716 Industrial Economics HSL813 Foundations of Decision Theory Macroeconomics Track HSL714 International Economics	3 3 3 3 3 3		3 3 3 3 3	HSL703 HSL704	Policy Studies Approaches to Science and Technology Policy Studies Perspectives on climate change: Implications for policy Inclusive Innovation: Theory and Practice	3 2	0 0 0	0 4	3 4 3
HSL816 Game Theory HSL815 Theory of Market Design HSL716 Industrial Economics HSL813 Foundations of Decision Theory Macroeconomics Track HSL714 International Economics HSL711 Macro Development Economics	3 3 3 3 3 3		3 3 3 3 3 3	HSL703 HSL704 HSL762	Policy Studies Approaches to Science and Technology Policy Studies Perspectives on climate change: Implications for policy Inclusive Innovation: Theory and Practice Social Issues: Analysis and Policy Sociology of India	3 2 3	0 0 0 0	0 4 0 0	3 4 3
HSL816Game TheoryHSL815Theory of Market DesignHSL716Industrial EconomicsHSL813Foundations of Decision TheoryMacroeconomics TrackHSL714International EconomicsHSL711Macro Development EconomicsHSL812Advanced International Trade	3 3 3 3 3 3 3 3 3		3 3 3 3 3 3	HSL703 HSL704 HSL762 HSL772	Policy Studies Approaches to Science and Technology Policy Studies Perspectives on climate change: Implications for policy Inclusive Innovation: Theory and Practice Social Issues: Analysis and Policy Sociology of India	3 2 3 3	0 0 0 0	0 4 0 0	3 4 3 3 3
HSL816Game TheoryHSL815Theory of Market DesignHSL716Industrial EconomicsHSL813Foundations of Decision TheoryMacroeconomics TrackHSL714International EconomicsHSL711Macro Development EconomicsHSL812Advanced International TradeHSL811Advanced Economic Growth Theory	3 3 3 3 3 3 3 3 3		3 3 3 3 3 3 3 3 3	HSL703 HSL704 HSL762 HSL772 HSL776	Policy Studies Approaches to Science and Technology Policy Studies Perspectives on climate change: Implications for policy Inclusive Innovation: Theory and Practice Social Issues: Analysis and Policy Sociology of India Capitalism: Theory and Practice	3 2 3 3 3	0 0 0 0 0	0 4 0 0 0	3 4 3 3 3
HSL816 Game Theory HSL815 Theory of Market Design HSL716 Industrial Economics HSL813 Foundations of Decision Theory Macroeconomics Track HSL714 International Economics HSL711 Macro Development Economics HSL812 Advanced International Trade HSL811 Advanced Economic Growth Theory Quantitative Economics Track	3 3 3 3 3 3 3 3 3		3 3 3 3 3 3 3 3 3 3 3 3 3 3	HSL703 HSL704 HSL762 HSL772 HSL776 HSL779	Policy Studies Approaches to Science and Technology Policy Studies Perspectives on climate change: Implications for policy Inclusive Innovation: Theory and Practice Social Issues: Analysis and Policy Sociology of India Capitalism: Theory and Practice Gender and Society	3 2 3 3 3 3	0 0 0 0 0 0	0 4 0 0 0	3 4 3 3 3 3 3 3
HSL816Game TheoryHSL815Theory of Market DesignHSL716Industrial EconomicsHSL813Foundations of Decision TheoryMacroeconomics TrackHSL714International EconomicsHSL714International EconomicsHSL711Macro Development EconomicsHSL812Advanced International TradeHSL811Advanced Economic Growth TheoryQuantitative Economics TrackHSL719Advanced EconometricsHSL715Time Series Econometrics and Forecasting	3 3 3 3 3 3 3 3 3 3 3 3		3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	HSL703 HSL704 HSL762 HSL772 HSL776 HSL779 HSL781	Policy Studies Approaches to Science and Technology Policy Studies Perspectives on climate change: Implications for policy Inclusive Innovation: Theory and Practice Social Issues: Analysis and Policy Sociology of India Capitalism: Theory and Practice Gender and Society Potential and Perils of the Digital Welfare	3 2 3 3 3 3 3 3	0 0 0 0 0 0	0 4 0 0 0 0 0 0	3 4 3 3 3 3 3 3
HSL816 Game Theory HSL815 Theory of Market Design HSL716 Industrial Economics HSL813 Foundations of Decision Theory Macroeconomics Track HSL714 International Economics HSL711 Macro Development Economics HSL812 Advanced International Trade HSL811 Advanced Economic Growth Theory Quantitative Economics Track HSL719 Advanced Econometrics	3 3 3 3 3 3 3 3 3 3 3 3		3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	HSL703 HSL704 HSL762 HSL772 HSL776 HSL779 HSL781 HSL782	Policy Studies Approaches to Science and Technology Policy Studies Perspectives on climate change: Implications for policy Inclusive Innovation: Theory and Practice Social Issues: Analysis and Policy Sociology of India Capitalism: Theory and Practice Gender and Society Potential and Perils of the Digital Welfare Perspectives on Development in India	3 2 3 3 3 3 3 3 3 3 3	0 0 0 0 0 0 0 0 0	0 4 0 0 0 0 0 0	3 4 3 3 3 3 3 3 3 3 3 3

Sem.			Course	es				Lecture courses	C	ontac	t h/w	eek	Credits
Sem.		(Numbe	r, Abbreviated 1	Title, L-T-P,	credits)			Cou	L	т	Р	Total	Cre
			Programme	e Core									
I	HSL511 Microeconomics-1 (3-1-0) 4	HSL512 Macroeconomics-1 (3-1-0) 4	HSL513 Probability and Statistics for Economics (3-0-2) 4	HSL516 Mathematic Economics (3-1-0) 4	cal	HSL514 Issues in Development* (3-0-0) 3		5	15	3	2	20	19
		Program	me Core				Programme Elective						
II	HSL611 Microeconomics-2 (3-1-0) 4	HSL612 Macroeconomics-2 (3-1-0) 4	HSL613 Econometrics (3-0-2) 4	HSL614 Developme Economics (3-0-0) 3	nt	HSP511 Economics Lab (0-0-8) 4	OE-1 (3-0-0) 3	5	15	2	10	27	22
Summe	er			Summer Ini	ternship/Pro	ject (optional a	nd non-credit))					
		Programme Core			Programm								
III	HSL515 Indian Economy* (3-0-0) 3	HSP612 Research Seminar (1-0-4) 3	HSP611 Advanced Economics Lab (0-0-8) 4	HSP520 Project-I (0-0-6) 3	PE-1 (3-0-0) 3	PE-2 (3-0-0) 3	PE-3 (3-0-0) 3	5	13	0	18	31	22
		Programme Core			Programm	e Elective			-	-		-	
IV	HCDG20 Droject II				OE-2 (3-0	-0) 3		1	3	0	18	21	12

*Issues in Development and India Economy will be offered in alternate years so that both first year and second year students attend one compulsory course together.

Master of Science in Mathematics Department of Mathematics

The overall credits structure

Category	PC	PE	OC	Total
Credits	57	12	6	75

Program	Core					MTL745	Advanced Matrix Theory	3	0	0	3
MTD701	Project-I	0	0	1(05	MTL746	Methods of Applied Mathematics	3	0	0	3
MTL501	,	-	-	0		MTL747	Mathematical Logic	3	0	0	3
	Linear Algebra			0		MTL751	Symbolic Dynamics	3	0	0	3
	Real Analysis		1		4	MTL752	Data Structures for Applied Mathematics	3	0	2 4	4
	Ordinary Differential Equations	-	1	0	-		Algebraic Geometry	3	0	0	3
	Computer Programming	3	0	2		MTL756	Lie Algebras and Lie Groups	3	0	0	3
	Complex Analysis	3		0			Introduction to Algebraic Topology	3	0	0	3
	Topology	3	1		4		Advanced Algorithms	3		0	
	Mathematical Programming	3	1		4		Basic Ergodic Theory			0 3	3
	Numerical Analysis	3	1		4		Probability Theory			0	
	Measure and Integration	3	1	0	4		Introduction to Game Theory	3	0	0 3	3
	Probability and Statistics	3	1	0	4		Multivariate Statistical Methods				
	Functional Analysis	3	1	0	4		Graph Theory			0	-
MTL603	Partial Differential Equations	3	1	0	4		Wavelets and Applications	3	-	0	-
	Total Credits				57		Graph Algorithms	-	-	0	-
_							Parameterized Algorithms for NP-hard	3	-	0	-
Program	Electives					MILL 00	Problems	Ŭ	Ũ	•	0
	Project-II	0	0	12	26	MTI 781	Finite Element Theory and Applications	3	0	0	3
	Principles of Optimization Theory			0			Data Mining			2 4	
	Numerical Optimization			0			Natural Language Processing			0	
	Computational Methods for Differential Equations						Modern Methods in Partial Differential equations				
	Fuzzy Sets and Applications	-	-	0	-		Numerical Methods for Hyperbolic PDEs	3		0	
	Neurocomputing and Applications			0			Advanced Probability Theory		-	0	-
	Stochastic Processes and its Applications			0				-	-	0.	-
	Category Theory	-	-	0	-		Mathematical Analysis in Learning Theory	3		0 3	
	Computational Algebra and its Applications			0				-	-	0	-
	Cryptography			0			Special Module in Dynamical System			0	
MTL731	· · · · · · · · · · · · · · · · · · ·		-	0	-		Mathematical Modeling of Credit Risk		-	0	-
	Financial Mathematics			0			Applied Numerical Analysis			0	
	Stochastic of Finance			0			Interpolation and Approximation	-	-	0	-
	Advanced Number Theory			0		IVI I L855	Multiple Decision Procedures in Ranking	3	0	0	3
	Analytic Number Theory			0			and Selection	~	~	~	~
	Differential Geometry			0			Linear Algebra	3		0	
	Commutative Algebra			0			Algebraic Number Theory	3		0	
	Representation of Finite Groups			0			Analysis	3	-	0	-
	Fractal Geometry			0			Applied Analysis	3		0	
	Operator Theory			0			Physical Fluid Mechanics	-	-	0	-
	Fourier Analysis			0		MTL888	Boundary Elements Methods with Computer	3	0	0	3
WIL/44	Mathematical Theory of Coding	3	0	0	3		Implementation				

Sem.			Cours	ses		Lecture courses	Co	ontac	t h/w	eek	Credits
Sem.		(Nu	Imber, Abbreviated	Title, L-T-P, Credits)		Coul	L	т	Р	Total	Cre
I	MTL501 Algebra (3-1-0) 4	MTL502 Linear Algebra (3-1-0) 4	MTL503 Real Analysis (3-1-0) 4	MTL504 Ordinary Differential Equations (3-1-0) 4	MTL505 Computer Programming (3-0-2) 4	5	15	5	0	20	20
п	MTL506 Complex Analysis (3-1-0) 4	MTL507 Topology (3-1-0) 4	MTL508 Mathematical Programming (3-1-0) 4	MTL509 Numerical Analysis (3-1-0) 4	MTL510 Measure and Integration (3-1-0) 4	5	15	5	0	20	20
Summ	er	•		• •	· · ·						
ш	MTL601 Probability and Statistics (3-1-0) 4	MTL602 Functional Analysis (3-1-0) 4	MTL603 Partial Differential Equations (3-1-0) 4	DE-1	MAD701 Project-I (0-0-10) 5	4	12	3	10	25	20
IV	DE-2	DE-3	DE-4	OC-1	OC-2	5	15	0	0	15	15

Master of Science in Physics Department of Physics

The overall credits structure

Category	PC	PE	OE	Total
Credits	62	12	6	80

Optional Departmental specialization : Additional 6 credits : Total Credits : 86 with specialization

Program	Coro						Quantum Information and Computation	2	0	Δ	3
		•	•	0.0	_	PYL760	Biomedical optics and Bio-photonics		0		
PYD561				6 3		PYL761	Liquid Crystals		0		
	Project-II			126		PYL762	Statistical Optics and Optical Coherence Theory		0		3
PYL551	Classical Mechanics	3		04		PYL770	Ultra-fast optics and applications	3		-	3
PYL552		3	-	-		PYL793	Photonic Devices	3			3
PYL553	Mathematical Physics	3		04	-			v			3
PYL555		3		0 4		PYL892	Guided Wave Photonic Sensors	3	0	0	3
PYL556		3		03		Specialis	zation in Condensed Matter Physics Min. 12	or	odi	te	
PYL557		3		0 4		-					
PYL558		3		0 4			Advanced Solid State Physics		0		
	Applied Optics	3		04			Magnetism and Spintronics		0		
PYL563		3		04			Physics of Semiconductor Devices		0		
	Atomic and Molecular Physics	3		03		PYL704	Science and Technology of Thin Films	3	0	0	3
PYL569	Nuclear and Particle Physics			03		PYL707	Characterization Techniques for Materials	3	0	0	3
PYP561		0		8 4		PYL727	Energy Materials and Devices	3	0	0	3
PYP562	5	0		8 4		PYL728	Quantum Heterostructures	2	0	0	2
PYP563	Advanced Laboratory	0	0	84	1	PYL739	Computational Techniques for Solid	3	0	0	3
	Total Credits			6	62		State Materials				
						PYL740	Advanced Condensed Matter Theory	3	0	0	3
Program	Electives										
PYD658	Mini Project	0	0	6 3	3	Specializ	zation in Theoretical Physics Min. 12 credits	5			
PYL653	Semiconductor Electronics	3	0	03	3	PYL657	Plasma Physics	3	0	0	3
PYL656	Microwaves	3	0	0 3	3	PYL658	Advanced Plasma Physics	3	0	0	3
PYL705	Nanostructured Materials	3	0	03	3	PYL730	Plasma Theory and Simulations	3	0	0	3
PYL711	Introduction to Nonlinear Dynamics	3	1	0 4	1	PYL740	Advanced Condensed Matter Theory	3	0	0	3
PYL723	Vacuum Science and Cryogenics	3	0	03	3	PYL741	Field Theory and Quantum Electrodynamics	3	0	0	3
PYL725	Physics of Amorphous Materials	3	0	03	3	PYL742	General Relativity and Introductory	3	0	0	3
PYL792	Optical Electronics	3	0	03	3		Astrophysics				
						PYL743	Group Theory and its Applications	3	0	0	3
Specializ	zation in Photonics Min. 12 credits					PYL744	High Energy Physics	3	0	0	3
PYL650	Fiber and Integrated Optics	3	0	03	3	PYL745	Advanced Statistical Mechanics	3	0	0	3
PYL655	Laser Physics			0 3		PYL746	Non-equilibrium Statistical Mechanics with	3	0	0	3
PYL659	Laser Spectroscopy			0 3		0	Interdisciplinary Applications	5	•	Ũ	•
PYL747	,			0 3		PYL748	Quantum Optics	3	0	0	3
PYL748	Quantum Optics			0 3		PYL749					3
							Cuantum Information and Computation				

Com				Course	25				Lecture courses	Cor	ntact	h/we	eek	Credits
Sem.			(Number, At	breviated T	Title, L-T-P, Cre	edits)			Lect	L	Т	Р	Total	Cre
I	PYL551 Classical Mechanics (3-1-0) 4	PYL553 Mathematical Physics (3-1-0) 4	PYL555 Quantum Mechanics (3-1-0) 4	PYL557 Electronics (3-1-0) 4	PYP561 Laboratory-I (0-0-8) 4				4	12	4	8	24	20
II	PYL552 Electro- dynamics (3-1-0) 4	PYL556 Quantum Mechanics-II (3-0-0) 3	PYL558 Statistical Mechanics (3-1-0) 4	PYL560 Applied Optics (3-1-0) 4	PYP562 Laboratory-II (0-0-8) 4	PYL563 Solid State Physics (3-1-0) 4			5	15	3	8	26	22
Summ	ier													
III	PYD561 Project-I (0-0-6) 3	PYL567 Atomic and Molecular Physics (3-0-0) 3	PYL569 Nuclear and Particle Physics (3-0-0) 3	PYP563 Advanced Laboratory (0-0-8) 4	PE-I (3-0-0) 3	PE-2 (3-0-0) 3	OE-1 (3-0-0) 3	DS-1 (3-0-0) 3	5-6	15-18	1	14	30-33	23-26
IV	PYD562 Project-II (0-0-12) 6	PE-3 (3-0-0) 3	PE-4 (3-0-0) 3	OE-2 (3-0-0) 3	DS-2 (3-0-0) 3				3-4	9-12	0	12	21-24	15-18

Total = 75-81

Master of Science in Biological Sciences Department of Biological Sciences

The overall credits structure

Category	PC	PE/OE	NGU	Total
Credits	64	12	1	76

Program	Core		
SBL500	Molecular Cell Biology & Genetics	3 (24
SBL510	Mathematical and Statistical Biology	3 0	24
SBL520	Biochemistry	3 0	24
SBL530	Biology of Microbes	3 0	24
SBL540	Experimental Methods in Biology	3 0	24
SBL600	Computational Biology and Data Analyses	1 C) 6 4
SBV601	Intellectual Property Rights in Biosciences	1 C	01
SBQ601	Seminars in Biological Sciences	01	0 1
			NGU
SBL610	Genetic Engineering and Biotechnology	3 0) 2 4
SBL620	Immunobiology	3 0	24

SBL630	Advanced Cellular Biology	3	0	24
SBL640	Biological Pathways	3	0	24
SBD601	Minor Project	0	0	126
SBD602	Project / Internship	0	0	34 17
	Total Credits			65

All 700/800 courses from KSBS and other academic units at IIT Delhi may be considered as electives, as long as the pre-requisites are fulfilled. No distinction has been made between open electives (OE) and program electives (PE) to ensure and strengthen the interdisciplinary nature of the program.

Program/Open Electives

Sem.			Cou	rses			Lecture courses	0	Contact	h/we	ek	Credits
Sem.		(Number, Abbreviated Title, L-T-P, Credits)							Т	Р	Total	Cre
I	SBL500 Molecular Cell Biology & Genetics (3-0-2) 4	SBL510 Mathematical and Statistical Biology (3-0-2) 4	SBL520 Biochemistry (3-0-2) 4	SBL530 Biology of Microbes (3-0-2) 4	SBL540 Experimental Methods in Biology (3-0-2) 4			15	0	5	25	20
п	SBL600 Computational Biology and Data Analyses (1-0-6) 4	SBL610 Genetic Engineering and Biotechnology (3-0-2) 4	SBL620 Immunobiology (3-0-2) 4	SBL630 Advanced Cellular Biology (3-0-2) 4	SBL640 Biological Pathways (3-0-2) 4	SVL601 Intellectual Property Rights in Biosciences (1-0-0) 1		14	0	7	28	21
III	Elective I (3-0-0) 3	Elective II (3-0-0) 3	Elective III (3-0-0) 3	Elective IV (3-0-0) 3	SBD601 Minor Project (0-0-12) 6	SBQ601 Seminars in Biological Sciences (0-1-0) 1 NGU		12	1 NGU	6	24	18 (+1 NGU)
IV	SBD602 0 0 17 34 Project/Internship 0 0 17 34								17			
	Overall Credits									76 (+1 NGU)		

Master of Design in Industrial Design Department of Design

The overall credits structure

Category	PC	PE	OE	Total
Credits	39	9	3	51

Program Core		Program Electives
DDD792 Design Project-I	0 0 6 3	DDL725 Information Design & Data Visualization 2 0 2 3
DDD891 Design Project-II	0 0 126	DDL768 Design Research Methodology 2 0 2 3
DDD892 Industry/Research Design Project	0 0 189	DDL782 Design for Usability 2 0 2 3
DDL710 Framework of Design	2002	DDL810 Special Topics in Design-I 3 0 0 3
DDL732 Adv. Mat. Processes & Die Design	2023	DDL820 Special Topics in Design-II 3 0 0 3
5		DDL841 Design Management and Professional Practice 3 0 0 3
DDL751 Form and Aesthetics	2023	DDP712 Exhibitions and Environmental Design 2 0 2 3
DDP711 Computer Aided Product Detailing	1043	DDR762 Vehicle Design 2 0 2 3
DDP721 Design and Innovation Methods	1043	DDR772 Transportation Design 2 0 2 3
DDP722 Applied Ergonomics	1022	DDR812 Media Studies 2 0 2 3
DDP731 Communication and Presentation Skills	1043	DDR822 Design for Sustainability 2 0 2 3
DDP741 Product Interface & Design	1022	DDD830 Self-initiated Design Project 0 0 6 3
DDR761 Social Immersion (Non-credit)	0 0 2 0	DDR832 Design for User Experience 3 0 0 3
X ,		DDR852 Strategic Design Management 2 0 2 3
DDR801 Summer Internship (Non-credit)	0 0 4 0	DDR862 Design in Indian Context 3 0 0 3
Total Credits	39	DDV820 Special Modules in Design 1 0 0 1

Sem.			Course	S		Lecture courses		Conta	act h/we	ek	Credits
Sem.		(Numbe	er, Abbreviated T	itle, L-T-P, Credi	ts)	Led	L	т	Р	Total	Cre
I	DDL710 Framework of Design (2-0-0) 2	DDP721 Design and Innovation Methods (1-0-4) 3	DDP731 Communication and Presentation Skills (1-0-4) 3	DDP741 Product Interface & Design (1-0-2) 2	DDL751 Form and Aesthetics (2-0-2) 3	2	7	0	12	19	13
Winter		Soc	DDR76 cial Immersion (N	-							
II	DDP711 Computer Aided Product Detailing (1-0-4) 3	DDP722 Applied Ergonomics (1-0-2) 2	DDL732 Adv. Mat. Processes & Die Design (2-0-2) 3	DDD792 Design Project-I (0-0-6) 3	PE-1 (2-0-2/3-0-0) 3	2	6-7	0	14-16	21-22	14
Summer		Su	DSR80 mmer Intership (N		· · · ·						
ш	DDD891 Design Project-II (0-0-12) 6	PE-2 (2-0-2/3-0-0) 3	PE-3 (2-0-2/3-0-0) 3			2	4-6	0	6-10	12-14	12
IV	DDD892 Industry/ Research Design Project (0-0-18) 9	OE (3-0-0) 3				1	3	0	18	21	12

Total = 51

Master of Business Administration

Department of Management Studies

The overall credits structure

Category	P	me Core C Credits)	Streamed E SE (Total 12 o		Non-credit Core NC	Programme Electives PE	Total
	Common Core	Unique Core UC	Analytical Skills Stream AS	People Skills Stream PS			
Credits	30	3	6	6	3	27	72

33

Program Core

Programme Core consists of Common Core (CC) cours			,
Core (UC) courses. The total credits of Programme Co	re wo	uld be	e 33.
MSL705* HRM Systems	1.5	0 0	1.5
MSL706** Business Laws	3	0 0	3
MSL707* Management Accounting	3	0 0	3
MSL708* Financial Management	3	0 0	3
MSL709* Business Research Methods	1.5	0 0	1.5
MSL711* Strategic Management	3	0 0	3
MSL712* Ethics & Values Based Leadership	1.5	0 0	1.5
MSL713* Information Systems Management	3	0 0	3
MSL720* Macroeconomic Environment of Business	3	0 0	3
MSL745 Operations Management	3	0 0	3
MSL760 Marketing Management	3	0 0	3
MSL780* Managerial Economics	1.5	0 0	1.5
MDD801 MBA Project (Unique Core)	0	06	3

Notes:

The UC will include the MBA project which would focus on a research driven application of skills acquired in a particular functional area, through the programme.

- * These are new courses which have been designed and/or modified as a part of the curriculum review.
- ** MSL706 was initially an elective, MSL887. This course's content is the same, only the number has been changed to now reflect a core course.

Total Credits

Streamed Electives (SE)

Streamed Electives consist of Analytical Skills (AS) Stream and People Skills (PS) Stream. The total credits of Streamed Electives would be 12 – 6 from AS and 6 from PS.

a) Analytical Skills (AS) Stream

MSL719* Statistics for Management	3	003
MSL721* Econometrics	3	003
MSL740 Quantitative Methods in Management	3	003
MTL732 Financial Mathematics	3	104
* These are new courses which have been designed as a part of the curriculum review.	and/c	or modified
b) People Skills (PS) Stream		
MSL710 Creative Problem Solving	3	003

		0	•	•	0	
MSL724* Busine	ess Communication	1.5	0	0	1.5	
MSL725* Busine	ess Negotiations	1.5	0	0	1.5	
MSL727* Interpe	ersonal Behavior & Team Dynamics	1.5	0	0	1.5	
MSL729* Individ	lual Behavior in Organization	1.5	0	0	1.5	
MSL730* Manag	ging With Power	1.5	0	0	1.5	
MSL731* Devel	oping Self Awareness	1.5	0	0	1.5	
MSL733* Organ	ization Theory	1.5	0	0	1.5	
	v courses which have been designed a e curriculum review.	and/oi	r m	od	ified	

Non-credit Core (NC)

MST893	Corporate Sector Attachment

MST894* Social Sector Attachment * This is a new course which has been designed a curriculum review.		2 1 rt of the
Program Electives (PE)		
MDL800 Management of Blockchain Technologies	1.5 0	0 1.5
MDL801 Managing Digital Transformation	1.5 0	0 1.5

MDL801	Managing Digital Transformation	1.5	0	0	1.5	
MDL802	Entrepreneurial Finance	3	0	0	3	
MDL803	Fixed Income Securities	3	0	0	3	

MDL	804	Behavioral Finance	1.5	0	0	1.5
MDL	805	Financial Technology	1.5	0	0	1.5
MDL	809	Career Management Strategies	3	0	0	3
MDL	810	Consumer Behavior	3	0	0	3
MSL	716	Fundamentals of Management Systems	3	0	0	3
MSL	717*	Business Systems Analysis & Design	3	0	0	3
MSL		Management Control Systems	3	0	0	3
MSL		Management of Intellectual Property Rights	3	Õ	0	3
MSL		Labor Legislation and Industrial Relations	3	0	0	3
MSL		Science & Technology Policy Systems	3	0	0	3
MSL		Technology Forecasting & Assessment	1	0	0	3
MSV		Selected Topics in OB & HR Management	1	0	0	3 1
			1			1
		Selected Topics in Finance	-	0	0	
		Technical Entrepreneurship	3	0	0	3
		Selected Topics in Information Technology Mgmt.		0	0	1
		Selected Topics in Operations Management	1	0	0	1
		Selected Topics in Economics	1	0	0	1
		Mergers & Acquisitions	3	0	0	3
MSV		1 0 0	1	0	0	1
		Selected Topics in Strategic Management	1	0	0	1
		Systems Thinking	3	0	0	3
		Cyber Security: Managing Risks	3	0	0	3
MSL	810*	Advanced Data Mining for Business Decisions	1.	50	0	1.5
MSL8	812	Flexible Systems Management	3	0	0	3
MSL	813	Systems Methodology for Management	3	0	0	3
MSL	814*	Data Visualization	1.	50	0	1.5
MSL	815	Decision Support and Expert Systems	3	0	0	3
MSL		Systems Waste & Sustainability	3	0	0	3
MSL	819	, , , , , , , , , , , , , , , , , , , ,	3	0	0	3
MSL		Global Business Environment	3	0	0	3
		Strategy Execution Excellence	3	0	0	3
MSL			3	0	0	3
MSL		Strategic Change & Flexibility	3	0	0	3
MSL		Policy Dynamics & Learning Organization	3	Õ	0	3
MSL		Strategies in Functional Management	3	0	0	3
MSL		Business Ethics	3	0	0	3
MSL		International Competitiveness	3	0	0	3
MSL		Global Strategic Management	3	0	0	3
MSL		Current & Emerging Issues in Strategic Management	3	0	0	3
		Strategic Alliance		50	0	3 1.5
MSL			т. З	0	0	3
		Organizational Dynamics and Environment Organizational Structure and Processes				
MSL		0	3	0	0	3
MSL		Management of Change	3	0	0	3
MSL	832	Managing Innovation for Organizational	3	0	0	3
		Effectiveness	~	•	~	•
		Organizational Development		0	0	
		Managing Diversity at Workplace		50		1.5
		International Human Resources Management		50	0	1.5
MSL	839	Current & Emerging Issues in	3	0	0	3
		Organizational Management				
		Procurement Management	3	0	0	3
		Services Operations Management	3	0	0	3
MSL	715	Quality and Environment Management Systems	3	0	0	3
MSL	816	Total Quality Management	3	0	0	3
MSL	818	Industrial Waste Management	3	0	0	3
MSL	840	Manufacturing Strategy	3	0	0	3
		Supply Chain Analytics	3	0	0	3
		Supply Chain Modeling	3	0	0	3
		Supply Chain Logistics Management	3	0	0	3
MSL			3	0	0	3
		Maintenance Management				
MSL	845	Total Project Systems Management	3	0	0	3

0 0 4 2

5								·			
MSL846	Total Productivity Management	3	0	0	3		Industrial Enterprises				
MSL848*	Applied Operations Research	3	0	0	3	MSL847	Advanced Methods for Management Research	3	0	0	3
MSL849	Current & Emerging Issues in	3	0	0	3	MSL880	Selected Topics in Management Methodology	3	0	0	3
	Manufacturing Management							3	0	0	3
MSL850	Management of Information Technology	3	0	0	3		Current & Emerging Issues in Public Sector Mgmt.	. 3	0	0	3
MSL852	Network System: Applications and Mgmt.	3	0	0	3		Consultancy Process & Skills	3	0	0	3
MSL853*	Software Project Management	3	0	0	3		Consultancy Professional Practice	3		0	
MSL854*	Big Data Analytics & Data Science	1.5	0	0	1.5		Current & Emerging Issues in Consultancy Mgmt.	-		0	
MSL855*	Electronic Commerce	3	0	0	3		Advanced Data Analysis for Management	3		0	
MSL856*	Business Intelligence	3	0	0	3		International Economic Policy	3		0	
MSL858*	Business Process Management with IT	1.5	0	0	1.5		Selected Topics in OB & HR Management	1		0	
MSL859	Current and Emerging Issues in IT Mgmt.	3	0	0	3		Selected Topics in Finance	1		0	
MSL868*	Digital Research Methods	1.5	0	0	1.5		Selected Topics in IT Management	1		0	
MSL876*	Economics of Digital Business	1.5	0	0	1.5		Selected Topics in Operations Management	-	-	0	-
MSL877*	Electronic Government	1.5	0	0	1.5		Selected Topics in Economics	1		0	
MSL878*	Electronic Payments	1.5	0	0	1.5		Selected Topics in Marketing Management	1	-	0	-
MSL882*	Enterprise Cloud Computing	1.5	0	0	1.5		Case Study Teaching and Writing	1		0	
MSL883*	ICTs, Development and Business	1.5	0	0	1.5		Theories in IS research	3	-	0	-
	Information System Strategy	3	0	0	3		Contemporary Issue in Management	1		0	
MSL885*	Digital Marketing-Analytics & Optimization	3	0	0	3		Art of Scholarship in Management Research	•	-	0	-
MSL886*	IT Consulting & Practice	3	0	0	3		Interdisciplinary Research in Management	0		2	
MSL887*	Mobile Commerce	3	0	0	3		Contemporary Issues in OB & HR Mgmt.	1	-	0	-
MSL888*	Data Warehousing for Business Decision	1.5	0	0	1.5		Contemporary Issues in Finance	1		0	
	Data Analytics using SPSS	1.5	0	0	1.5		Contemporary Issues in IT Management	1	-	0	-
	Predictive Analytics	1.5	0	0	1.5		Contemporary Issues in Operations Mgmt.	1		0	
	Market Research	3	0	0	3		Contemporary Issues in Economic Policy	1		0	
	Product Management	3	0	0	3		Contemporary Issues in Strategic Mgmt.	1		0	
	Advertising and Sales Promotion Management	3	0	0	3		Frontiers in OB & HR Management	1		0	
	Corporate Communication	3			3		Frontiers in Finance	1		0	
	Sales Management	3	0	0	3		Frontiers in Information Systems Mgmt.	1	0	0	1
	International Marketing	3			3		Frontiers in Strategic Management	1	0	0	1
	Industrial Marketing Management	3		0	3		Qualitative Methods in Management	3		0	
	Current & Emerging Issues in Marketing	3			3		Macroeconomic Dynamics	3		0	
	Corporate Governance	1.5			1.5		Derivatives	3	0	0	3
	Banking and Financial Services	1.5			1.5		Financial Engineering	3	0		3
	Working Capital Management	3		0	3		Financial Institutions and Markets	3	0		3
	Security Analysis & Portfolio Management	3			3		Management of Blockchain Technology	1.5	0	0	1.5
	Indian Financial System	1.5			1.5		Managing Enterprise AI/ML Systems		0		1.5
	International Financial Management	3			3		Business Cycles and Global Economy	1.5			1.5
	Current & Emerging Issues in Finance	3		õ	3		Global Economic Development	1.5			1.5
	Management of Small & Medium Scale	3		0	3		Sovereign Debt and Default	3	0		3
		•	Ĩ	·	-		-				

Sem.				Cours						Lecture courses	Con	tact	h/w	reek	Credits
Sem.			(Number, A	bbreviated	Title, L-T-P,	Credits)				Lect	L	Т	Ρ	Total	Cre
I	MSL707 Mgmt. Accounting (3-0-0) 3	MSL709 Business Research Methods (1.5-0-0) 1.5	MSL712 Ethics & Values Based Leadership (1.5-0-0) 1.5	MSL760 Marketing Mgmt. (3-0-0) 3	MSL780 Managerial Economics (1.5-0-0) 1.5	SE AS-1 (3-0-0) 3	SE AS-2 (3-0-0) 3	SE PS-1 (1.5-0-0) 1.5	SE PS-2 (1.5-0-0) 1.5	9	19.5	0	0	19.5	19.5
Winter					So	MST cial Sector		t							
II	MSL705 HRM Systems (1.5-0-0) 1.5	MSL708 Financial Mgmt. (3-0-0) 3	MSL711 Strategic Mgmt. (3-0-0) 3	MSL713 Infor- mation Systems Mgmt. (3-0-0) 3	MSL720 Macro- economic Environ- ment of Business (3-0-0) 3	MSL745 Operation (3-0-0) 3		SE PS-3 (1.5-0-0) 1.5 SE PS-5 (3-0-0) 3	SE PS-4 (1.5-0-0) 1.5	7/8	19.5	0	0	19.5	19.5
Summer					Corp	MST orate Secto		ent						•	
III				(Cre	PE edits 15-18)					6/7	15-18	0	0	15-18	15-18
IV	MDD801 MBA Project (0-0-6) 3	MSL706 Business Laws (3-0-0) 3			(Cri	PE edits 9-12)				4/6	12-15	0	6	18-21	15-18

SE = Streamed Electives, AS = Analytical Skills Stream, PS = People Skills Stream, PE = Programme Electives

Programme Code: SMT

Master of Business Administration (Telecommunication Systems Management) Department of Management Studies

The overall credits structure

Catagony	Program P			S		ed Elective SE	5	Focus	Non-credit	Progran Electiv		T	ot
Category	(Total 33	-		(1		SE L2 credits)	Electives	Core NC	PE	es		
	Common Core	Unique Core UC		_	Skills	Peop	ble Skills cream PS						
Credits	30	3		6			6	6	3	21			7
rogram Coi	e (PC)					Program	Electives	(PE)					
		nmon Core (CC) cour				MDL800	Managem	ent of Block	chain Techno	logies	1.5	0 0	C
. ,		lits of Programme Co	ore wo	uld be	ə 33.			Digital Tran			1.5	0 0	
SL705* HR				0 0				ne Securitie	s		3		
	siness Laws			0 0	3		Behaviora					0 0	
	nagement Accounti	-		0 0				Technology				0 0	
	ancial Management			0 0				inagement S	Strategies			0 (
	siness Research Me			0 0			Consumer			4		0 0	
	ategic Management			0 0	3				agement Sys		3	0 0	
	ics & Values Based ormation Systems M			0000				ent Control	alysis & Desi	gn	3 3	000	
		onment of Business		0 0					ctual Proper	w Piahte	3	0 0	
	erations Manageme			0 0					Industrial Re		3	0 0	
•	rketing Managemer			0 0					Policy Syste		3	0 0	
	nagerial Economics			0 0					ng & Assessn		3	0 0	
	A Project (Unique C		0	06	3			Éntrepreneu			3	0 0	С
otes:		,				MSL806*	Mergers 8	Acquisition	s. S		3	0 0	C
ne UC will in	clude the MBA proj	ect which would focu	s on a	rese	arch	MSL807*	Selected 7	opics in Stra	ategic Manag	gement	1	0 0	0
		ired in a particular f					Systems 1				3	0 0	
rough the p								ystems Man			3	0 0	
These are i	new courses which	have been designed	and/o	r mod	lified				for Manager	ment	3	0 0	
	the curriculum revi							Vaste & Sus			3	0 0	
-		, MSL887. This course	e's cor	ntent i	s the				engineering		3	0 0	
	•	changed to now refle						siness Envir Execution Ex			3 3	000	
	al Credits				33			al Business			3	0 0	
700	ai oreans				55			Change & Fl			3	0 0	
treamed El	ectives (SE)								arning Organ	ization	3	0 0	
treamed Ele	ctives consist of Ana	alytical Skills (AS) Stre	eam ai	nd Pe	ople				al Manageme		3	0 0	
· · /		dits of Streamed Ele	ctives	woul	d be		Business		Ū		3	0 0	C
2 – 6 from A	S and 6 from PS.							al Competit			3	0 0	-
	Skills (AS) Stream							ategic Mana			3	0 0	
	tistics for Managem	ient	3	00					ues in Strate	gic Mgmt.		0 0	
ISL721* Eco				0 0			Strategic A		ice and Envi	ronmont		0 0	
	antitative Methods i			0 0				curity: Manag	ics and Envi	ronment	3 3	000	
IL/32 FIN	ancial Mathematics		3	10	4				for Business I	Decisions			
		have been designed	and/o	r moa	lified		Data Visua	•		500010110		0 0	
as a part of	the curriculum revi	ew.							Expert Syste	ms	3	0 0	
) People Sk	ills (PS) Stream								ire and Proce		3	0 0	
	ative Problem Solv	0		00		MSL831	Managem	ent of Chang	ge		3	0 0	C
	siness Communicat	ion		0 0		MSL832			or Organizat	ional	3	0 0	0
	siness Negotiations	0 T D		0 0			Effectiven						
		& Team Dynamics		0 0				onal Develo			3	0 0	
	ividual Behavior in (naging With Power	Jiganization		0000				Diversity at				0 0	
	eloping Self Aware	ness		0 0					esources Man	agement			
	anization Theory	1033		0 0		MSL839		Emerging Is			3	0 0	J
-	•	nave been designed					•	onal Manag ent Managei			3	0 0	n
	e curriculum review								lanagement		3	0 0	
									Management		3	0 0	
ocus Electi	ves (FE)							ity Manager		2,000110	3	0 0	
SL723 Tele	ecommunication Sy	stems	3	0 0				Naste Mana			3	0 0	
		sis, Planning & Desigi		0 0				ring Strateg	-		3	0 0	
		inication Management		0 0				ain Analytic			3	0 0	
EL767 Tele	ecom Systems		3	0 0	3			ain Modelin			3	0 0	С
	ore (NC)					MSL843	Supply Ch	ain Logistics	s Manageme		3	0 0	
on-credit C				0 4	2	MSL844	Systems F	Reliability, Sa	fety and Mair	ntenance	3	0 0)
on-credit C	norata Casta- AH	hmont											
ST893 Col	porate Sector Attachme			04			Managem					_	
IST893 Coi IST894* Soc	cial Sector Attachme		0	02	1		Total Proje		Managemen	t	3 3	00	

MS	SL849	Current & Emerging Issues in Manufacturing	3	0	0	3		Selected Topics in Management Methodology		0 (
		Management	_	_		_	MSL881	Mgmt. of Public Sector Enterprises in India	3	0 (-
		Management of Information Technology	3			3		Current & Emerging Issues in Public Sector Mgmt.		0 (
		Network System: Applications and Management	3		0	3		Consultancy Process & Skills	3	0 (
		Software Project Management	3		0	3	MSL898	Consultancy Professional Practice	3	0 0) 3	3
		Big Data Analytics & Data Science	1.5	0		1.5	MSL899	Current & Emerging Issues in Consultancy	3	0 () 3	3
		Electronic Commerce	3	0	-	3		Management				
		Business Intelligence	3	0	0	3	MSL895	Advanced Data Analysis for Management	3	0 0) 3	3
		Business Process Management with IT	1.5			1.5	MSL896	International Economic Policy	3	0 0) 3	3
MS	SL859	Current and Emerging Issues in IT Mgmt.	3		0	3	MSV801	Selected Topics in OB & HR Management	1	0 0) '	1
MS	SL868*	Digital Research Methods	1.5	0	0	1.5	MSV802	Selected Topics in Finance	1	0 0) '	1
MS	SL876*	Economics of Digital Business	1.5	0	0	1.5	MSV803	Selected Topics in IT Management	1	0 0) '	1
MS	SL877*	Electronic Government	1.5	0	0	1.5		Selected Topics in Operations Management	1	0 0) ·	1
MS	SL878*	Electronic Payments	1.5	0	0	1.5		Selected Topics in Economics	1	0 0	· (1
MS	SL882*	Enterprise Cloud Computing	1.5	0	0	1.5		Selected Topics in Marketing Management	1	0 0	-	-
MS	SL883*	ICTs, Development and Business	1.5	0	0	1.5		Case Study Teaching and Writing	1	0 (-	-
MS	SL884*	Information System Strategy	3	0	0	3		Theories in IS research	3	0 0	-	-
MS	SL885*	Digital Marketing-Analytics & Optimization	3		0	3		Contemporary Issue in Management	1	0 0		-
MS	SL886*	IT Consulting & Practice	3		0	3		Art of Scholarship in Management Research	1	0 (-	-
		Mobile Commerce	3		0	3		Interdisciplinary Research in Management	0	0 2		
MS	SL888*	Data Warehousing for Business Decision	1.5	0	0	1.5		Contemporary Issues in OB & HR Mgmt.	1	0 0		
MS	SL891*	Data Analytics using SPSS	1.5	0	0	1.5		Contemporary Issues in Finance	1	0 0		
MS	SL892*	Predictive Analytics	1.5			1.5		Contemporary Issues in IT Management	1	0 0		
MS	SL861	Market Research	3	-	0	3				0 0		
MS	SL862	Product Management	3	0	0	3		Contemporary Issues in Operations Mgmt.	1			
MS	SL863	Advertising and Sales Promotion Management	3	0	0	3		Contemporary Issues in Economic Policy	1	0 (-	
MS	SL864*	Corporate Communication	3	0	0	3		Contemporary Issues in Strategic Mgmt.	1	0 (-	-
MS	SL865	Sales Management	3	0	0	3		Frontiers in OB & HR Management	1	0 (-	•
MS	SL866	International Marketing	3	0	0	3		Frontiers in Finance	1	0 (-	•
MS	SL867	Industrial Marketing Management	3	0	0	3		Frontiers in Information Systems Mgmt.	1	0 (-	•
MS	SL869	Current & Emerging Issues in Marketing	3	0	0	3		Frontiers in Strategic Management	1	0 (-	-
MS	SL870*	Corporate Governance	1.5	0	0	1.5		Qualitative Methods in Management	3	0 (3
MS	SL871*	Banking and Financial Services	1.5	0	0	1.5		Macroeconomic Dynamics	3	0 () 3	3
MS	SL872	Working Capital Management	3	0	0	3	MDL806	Derivatives	3	0 () 3	3
MS	SL873	Security Analysis & Portfolio Management	3	0	0	3	MSL890	Financial Engineering	3	0 () 3	3
MS	SL874*	Indian Financial System	1.5	0	0	1.5	MSL310	Financial Institutions and Markets	3	0 0) 3	3
MS	SL875	International Financial Management	3	0	0	3	MSL718	Management of Blockchain Technology	1.5	0 0) '	1.5
		Current & Emerging Issues in Finance	3	0	0	3	MSL722	Managing Enterprise AI/ML Systems	1.5	0 0) '	1.5
		Management of Small & Medium Scale	3	0	0	3		Business Cycles and Global Economy	1.5	0 0) ·	1.5
		Industrial Enterprises						Global Economic Development		0 (1.5
MS	SL847	Advanced Methods for Management Research	3	0	0	3		Sovereign Debt and Default	3	0 (3
		Ŭ						U	-			

Sem.				Cours	ses					Lecture courses	Con	tact	h/w	/eek	Credits
Sem.			(Number, A	bbreviated	Title, L-T-P	, credits)				Lect	L	Т	Ρ	Total	Cre
I	MSL707 Mgmt. Accounting (3-0-0) 3	MSL709 Business Research Methods (1.5-0-0) 1.5	MSL712 Ethics & Values Based Leadership (1.5-0-0) 1.5	MSL760 Marketing Mgmt. (3-0-0) 3	MSL780 Managerial Economics (1.5-0-0) 1.5	SE AS-1 (3-0-0) 3	SE AS-2 (3-0-0) 3	SE PS-1 (1.5-0-0) 1.5	SE PS-2 (1.5-0-0) 1.5	9	19.5	0	0	19.5	19.5
Winter															
II	MSL705 HRM Systems (1.5-0-0) 1.5	MSL708 Financial Mgmt. (3-0-0) 3	MSL711 Strategic Mgmt. (3-0-0) 3	MSL713 Infor- mation Systems Mgmt. (3-0-0) 3		Macroeconomic Environment of Business		SE PS-3 (1.5-0-0) 1.5 SE PS-5 (3-0-0) 3	SE PS-4 (1.5-0-0) 1.5	7/8	19.5	0	0	19.5	19.5
Summer					Cor		893 for Attachmer	nt							
III				(Cre	PE edits 15-18)					6/7	15-18	0	0	15-18	15-18
IV	MDD802 MBA Project (0-0-6) 3	MSL706 Business Laws (3-0-0) 3	FE-1 (3-0-0) 3	FE-2 (3-0-0) 3			PE (Credits 3-6)			4/6	12-15	0	6	18-21	15-18

SE = Streamed Electives, AS = Analytical Skills Stream, PS = People Skills Stream, PE = Programme Electives

Master of Business Administration (Executive)

Department of Management Studies

The overall credits structure

Category	Program P (Total 36	C		med Electives SE I 12 credits		Non-credit Core NC	Programme 7 Electives PE	Total
	Common Core	Unique Core UC	Analytical Skil Stream AS	St	le Skills ream PS			
Credits	24	3	6		4.5	3	16.5	54
ogram Col	re (PC)					Anagement		3
	Core consists of Con urses. The total crea					Digital Transf	nain Technologies	s 1 1
()	M Systems		1.5 0 0 1.5	MDL802	Entreprene	eurial Finance	;	3
	inagement Accountil	ng	3 0 0 3			me Securities	5	3
	siness Research Me		1.5 0 0 1.5		Behavioral			1
	ategic Management		3 0 0 3		Financial T	inagement St	ratenies	1
	nics & Values Based		1.5 0 0 1.5		Consumer		lategies	3
	ormation Systems N atistics for Managem		$\begin{array}{cccc} 3 & 0 & 0 & 3 \\ 3 & 0 & 0 & 3 \end{array}$				gement Systems	
	croeconomic Enviro		3 0 0 3				ysis & Design	3
	siness Communicat		1.5 0 0 1.5			ent Control Sy		3
SL727* Inte	erpersonal Behavior	& Team Dynamics	1.5 0 0 1.5				tual Property Rig	
	lividual Behavior in (1.5 0 0 1.5				dustrial Relation	
	antitative Methods i		3 0 0 3				Policy Systems & Assessment	3
	erations Manageme Irketing Managemer		$\begin{array}{cccc} 3 & 0 & 0 & 3 \\ 3 & 0 & 0 & 3 \end{array}$			Entrepreneurs		3
	inagerial Economics		1.5 0 0 1.5			Acquisitions	- 1-	3
	BA Project (Unique C		0 0 6 3				egic Managemer	nt 1
	tal Credits	,	33		Systems T			3
						/stems Manag		3
otes:	include MPA project	t which would foou	o on o roccorch			Vaste & Susta	or Management	3
	include MBA projec ation of skills acqu					Process Re-e		3
rough the p		i ou in a particular	ranotional aloa,			siness Enviror	0 0	3
• ·	new courses which l	have been designed	and/or modified	MSL821*	Strategy E	xecution Exce	ellence	3
	f the curriculum revi	-				al Business		3
MSL706 wa	as initially an elective,	MSL887. This cours	e's content is the			Change & Flex		3
same, only i	the number has been	changed to now refle	ect a core course.				ning Organizatio Management	n 3
treamed El	ectives (SE)				Business E		Management	3
	ectives consist of Ana	lvtical Skills (AS) Sti	ream and People			al Competitiv	eness	3
	tream. The total cre					ategic Manag		3
2 – 6 from A	S and 6 from PS.						es in Strategic Mg	
Analytical	Skills (AS) Stream	1			Strategic A		and Environme	1
SL721* Eco			3 0 0 3				s and Environme and Processes	
	ancial Mathematics		3 1 0 4			ent of Change		3
These are I	new courses which l	have been designed	and/or modified		•		r Organizational	3
as a part of	f the curriculum revi	ew.			Effectivene			
People Sk	tills (PS) Stream					onal Develop		3
	eative Problem Solv	ing	3 0 0 3	IVISL834*	Internation	Diversity at W	Vorkplace ources Managem	1 Iont 1
	siness Negotiations	-	1.5 0 0 1.5			Emerging Iss		3
	inaging With Power		1.5 0 0 1.5			onal Manager		
	veloping Self Aware	ness	1.5 0 0 1.5		Procureme	ent Managem	ent	3
-	ganization Theory		1.5 0 0 1.5			Operations Ma		3
	new courses which l	•	and/or modified				Management Syste	
as a part of	f the curriculum revi	ew.			Data Visua		voort Sustama	1
ocus Electi	ives (FE)					ity Manageme	xpert Systems	3
SL700 Fur	ndamentals of Mana	gement of Technolog	y 3 0 0 3			Naste Manag		
	ategic Technology N		3 0 0 3			ring Strategy		3
SL702 Ma	inagement of Innova	tion and R&D	3 0 0 3			ain Analytics		3
SL703 Mg	mt. of Technology Tr	ansfer and Absorptic	n 3003	MSL842*	Supply Ch	ain Modeling		3
0	ore (NC)						Management	3
-			0 0 6 3				and Maintenance Mo	-
on-credit C	minar			IVISL845	iotal Proje	ct Systems N		3
on-credit C SC894* Ser		a haar da i t		MCIOAG	Total Drad			
<mark>on-credit C</mark> SC894* Ser This is a n	new course which h	as been designed			Total Produ			3
on-credit C SC894* Ser This is a n curriculum	new course which h review.	as been designed		MSL848*	Applied Op	perations Res	earch	3
on-credit C SC894* Ser This is a n curriculum rogram Ele	new course which h	as been designed		MSL848* MSL849	Applied Op Current & Er	perations Res	earch in Manufacturing Mo	;

Courses of Study 2024-2025

MSL850 Management of Information Technolo		3	0		3	MSL880	Selected Topics in Management Methodology	3		0	
MSL852 Network System: Applications and Mg	gmt.	3	0		3	MSL881	Mgmt. of Public Sector Enterprises in India	3		0	
MSL853* Software Project Management		3	0	0	3	MSL889	Current & Emerging Issues in Public Sector Mgmt.	3		0	
MSL854* Big Data Analytics & Data Science		1.5	0	0	1.5	MSL897	Consultancy Process & Skills	3	0	0	3
MSL855* Electronic Commerce		3	0	0	3	MSL898	Consultancy Professional Practice	3	0	0	3
MSL856* Business Intelligence		3	0	0	3	MSL899	Current & Emerging Issues in Consultancy Mgmt.	. 3	0	0	3
MSL858* Business Process Management with	IT	1.5	0	0	1.5	MSL895	Advanced Data Analysis for Management	3	0	0	3
MSL859 Current and Emerging Issues in IT Mg	amt.	3	0	0	3	MSL896	International Economic Policy	3	0	0	3
MSL868* Digital Research Methods	5	1.5	0	0	1.5	MSV801	Selected Topics in OB & HR Management	1	0	0	1
MSL876* Economics of Digital Business		1.5	0	0	1.5	MSV802	Selected Topics in Finance	1	0	0	1
MSL877* Electronic Government		1.5	0	0	1.5	MSV803	Selected Topics in IT Management	1	0	0	1
MSL878* Electronic Payments		1.5	0	0	1.5	MSV804	Selected Topics in Operations Management	1	0	0	1
MSL882* Enterprise Cloud Computing		1.5	0	0	1.5	MSV805	Selected Topics in Economics	1	0	0	1
MSL883* ICTs, Development and Business		1.5	0	0	1.5	MSV806	Selected Topics in Marketing Management	1	0	0	1
MSL884* Information System Strategy		3	0	0	3	MSV815	Case Study Teaching and Writing	1	0	0	1
MSL885* Digital Marketing-Analytics & Optimization	ation	3	0	0	3	MSL799	Theories in IS research	3	0	0	3
MSL886* IT Consulting & Practice		3	0	0	3	MSV816	Contemporary Issue in Management	1	0	0	1
MSL887* Mobile Commerce		3	0	0	3	MSV817	Art of Scholarship in Management Research	1	0	0	1
MSL888* Data Warehousing for Business Decis	sion	1.5	0	0	1.5	MSP801	Interdisciplinary Research in Management	0	0	2	1
MSL891* Data Analytics using SPSS		1.5	0	0	1.5	MSV818	Contemporary Issues in OB & HR Mgmt.	1	0	0	1
MSL892* Predictive Analytics		1.5	0	0	1.5	MSV819	Contemporary Issues in Finance	1	0	0	1
MSL861 Market Research		3	0	0	3	MSV820	Contemporary Issues in IT Management	1	0	0	1
MSL862 Product Management		3	0	0	3	MSV821	Contemporary Issues in Operations Mgmt.	1	0	0	1
MSL863 Advertising and Sales Promotion Manag	ement	3	0	0	3	MSV822	Contemporary Issues in Economic Policy	1	0	0	1
MSL864* Corporate Communication		3	0	0	3	MSV824	Contemporary Issues in Strategic Mgmt.	1	0	0	1
MSL865 Sales Management		3	0	0	3	MSV826	Frontiers in OB & HR Management	1	0	0	1
MSL866 International Marketing		3	0	0	3	MSV827	Frontiers in Finance	1	0	0	1
MSL867 Industrial Marketing Management		3	0	0	3	MSV828	Frontiers in Information Systems Mgmt.	1	0	0	1
MSL869 Current & Emerging Issues in Market	ing	3	0	0	3	MSV832	Frontiers in Strategic Management	1	0	0	1
MSL870* Corporate Governance	0	1.5	0	0	1.5	MSL735	Qualitative Methods in Management	3	0	0	3
MSL871* Banking and Financial Services		1.5	0	0	1.5	MSL781	Macroeconomic Dynamics	3	0	0	3
MSL872 Working Capital Management		3	0	0	3	MDL806	Derivatives	3	0	0	3
MSL873 Security Analysis & Portfolio Manager	ment	3	0		3	MSL890	Financial Engineering	3	0	0	3
MSL874* Indian Financial System		1.5			1.5	MSL310	Financial Institutions and Markets	3	0	0	3
MSL875 International Financial Management		3	0		3	MSL718	Management of Blockchain Technology	1.5	0	0	1.5
MSL879 Current & Emerging Issues in Finance	е	3	0	0	3	MSL722	Managing Enterprise AI/ML Systems	1.5	0	0	1.5
MSL734 Management of Small & Medium Sca		3	0		3		Business Cycles and Global Economy	1.5			1.5
Industrial Enterprises	-	-	-	-	-		Global Economic Development	1.5			1.5
MSL847 Advanced Methods for Management Re	search	3	0	0	3		Sovereign Debt and Default	3	0	0	3
		-	-	-			~				

Sem.			Courses				Lecture courses	Cor	ntact	h/w	eek	Credits
Seni.		(Number, Ab	breviated Title, I	-T-P, credits)			Lect	L	Т	Ρ	Total	Cre
I	MSL707 Mgmt. Accounting (3-0-0) 3	MSL708 Financial Mgmt. (3-0-0) 3	MSL712 Ethics & Values Based Leadership (1.5-0-0) 1.5	MSL729 Individual Behavior in Organization (1.5-0-0) 1.5 + MSL724 Business Communication (1.5-0-0) 1.5	MSL719 Statistics for Mmgt. (3-0-0) 3	6	15	0	0	15	15	
Ш	HRM Systems (1.5-0-0) 1.5 Macroeconomic Environment of Systems Mgmt. Information Systems Mgmt. Ope		MSL745 Operations Mgmt. (3-0-0) 3	MSL727 Interperso nal Behavior & Team Dynamics (1.5-0-0) 1.5	MSL760 Marketing Mgmt. (3-0-0) 3	6	15	0	0	15	15	
Summer		1	I		C894 minar				1			
ш	MSL709 Business Re- search Methods (1.5-0-0) 1.5	MSL711 Strategic Mmgt. (3-0-0) 3	PE (0-0-21) 10.5				7/9	15	0	0	15	15
IV	MDD803 MBA Project (0-0-6) 3				2/3	9	0	0	9	9		

Total = 54

Master of Arts in Culture, Society, Thought Department of Humanities and Social Sciences

The overall credits structure

Categ	jory	PC	PE	OE			Total						
Cred	lits	53	15	6			74						
HSN500	Interdisc Society,	Thought	g Bootcamp:				1	HSL675 HSL676	Foundations in Digital Humanities Education and Society Religion and Society Introduction to Anti-Caste Thought and Literature	3 3	0 0 0	0 0 0 0	3 3 3
XXX HSL531 HSL551 HSL582	ISN590 Writing Workshop (XX Dept Seminars ISL531 Literary Theory ISL551 Philosophical Thinking ISL582 Theory & Methods in Humanities and Social Sciences		0 3 3	0 0 0	0 0 0	4 3 3 3	HSL683 HSL657 HSL632	Machine Minds: Philosophy of Artificial Intelligence The World Novel	3	0	0 0 0 0 0	3 3 3	
HSL571 HSL584 HSL583	rogram CoreSN500Interdisciplinary Reading Bootcamp: Culture, Society, Thought1011HSL686Foundations in Digital HumanitiSN590Writing Workshop1064HSL675Education and SocietySN590Writing Workshop1064HSL682Introduction to Anti-Caste ThoughtSL531Literary Theory3003HSL657Machine Minds: Philosophy of ArtificSL551Philosophical Thinking3003HSL657Machine Minds: Philosophy of ArtificSL582Theory & Methods in Humanities and Social Sciences3003HSL657Machine Minds: Philosophy of ArtificSL584Political Thought3003HSL652Philosophy and Its HistoriesSL584Political Thought3003HSL653Principles of Rationalism and ESL584Political Thought3003HSL654Ideas of FreedomSL575Fieldwork Methods*202HSL656Critical Philosophy of RaceSL584Archival Methods*1022HSL671Reading Ethnographic TextsSV735Narrative Matters*1022HSL671Reading Ethnographic TextsSV734Dimensions of Language*202HSL674Urban Ethnographic TextsSD690Research Project Part I063 <t< td=""><td>Political Theatre Philosophy and Its Histories Principles of Rationalism and Empiricism Ideas of Freedom</td><td>3</td><td>0 0 0 0</td><td>0 0 0 0</td><td>3 3 3 3</td></t<>		Political Theatre Philosophy and Its Histories Principles of Rationalism and Empiricism Ideas of Freedom	3	0 0 0 0	0 0 0 0	3 3 3 3						
HSL575 HSV735 HSL581	Fieldwor Narrative Archival	k Methods* e Matters* Methods*		2	0 0 0	0 0 2	2 2 2	HSL656 HSL671	Critical Philosophy of Řace Reading Ethnographic Texts Making Sense of the Everyday: Theories,	3	0 0		3 3
HSD690 HSD691 HSD692	Researc Researc Researc	h Project Part I h Project Part II h Project Part II		0	0	6 8	3 4 513	HSL674 HSL677	Family, Marriage and Kinship Urban Ethnography Comparative Literature: History, Theory and Method	3	0 0	0 0 0	3 3
	e have t Elective	to be taken) s		3	0	0	53			3	0	0 0 0 0	3 3 3

			Courses				er e	Cor	ntact	h/w		its		- -
	(Nur			L-T-P, credit	s)		Lectu	L	т	Ρ	Total	Cred	NGI	Total
	Programm	ne Core		Programme	e Electives	Colloquium								
HSN500 Reading Bootcamp (0-1-0) 1	HSL531 Literary Theory (3-0-0) 3	HSL551 Philosophical Thinking (3-0-0) 3	HSL582 Theory & Methods in HSS (3-0-0) 3	PE-1 (3-0-0) 3		NGU-1 Department Seminar Series	4	12	0	0	12	12	2	14
Pr	ogramme Cor	e	Research	Programm	e Electives	Colloquium								
HSL571 Contemporary Social Theory (3-0-0) 3	HSL584 Political Thought (3-0-0) 3	HSL583 Introduction to Research Methods (3-0-0) 3	HSD690 Research Project Part-1 (0-0-6) 3	PE-2 (3-0-0) 3	PE-3 (3-0-0) 3	NGU-1 Department Seminar Series	5	15	15	0	15	15+3 (Re- search Proj- ect)=18	1	19
			HS	N900 Writir	ig Workshop								4	4
Program	me Core	Research	Programm	e Electives	Open	Colloquium								
HSL572 Programming for DH HSL573 Narrative Matters HSL581 Archival Methods Any Two fo	HSL574 Dimensions of Language HSL575 Fieldwork Methods HSL585 Intro to Digitisation orm this list	HSD691 Research Project Part II (0-0-8) 4	PE-4 (3-0-0) 3	PE-5 (3-0-0) 3	OE-1 (3-0-0) 3	NGU-1 Department Seminar Series	5	13	0	0	13	13+4 (Re- search Project) = 17	1	18
Program	me Core	Resea	arch	Ор	en	Colloquium								
HSL572 Programming for DH HSL573 Narrative Matters HSL581 Archival Methods	HSL574 Dimensions of Language HSL575 Fieldwork Methods HSL585 Intro to Digitisation	HSD692 Research Proj (0-0-26) 13	ect Part III	OE-2 (3-0-0) 3		NGU-1 Department Seminar Series	2	5	0	0	5	5+13 (Re- search Project) = 18	1	19
	Reading Bootcamp (0-1-0) 1 Pr HSL571 Contemporary Social Theory (3-0-0) 3 Program HSL572 Programming for DH HSL573 Narrative Matters HSL581 Archival Methods Any Two fc Program HSL572 Programming for DH HSL577 Narrative Matters HSL573 Narrative Matters HSL573 Narrative Matters HSL573 Narrative	Programm HSN500 HSL531 Reading Literary Bootcamp Theory (0-1-0) 1 (3-0-0) 3 Programme Con HSL571 HSL584 Contemporary Political Social Thought Theory (3-0-0) 3 Octamporary Social Thought Theory (3-0-0) 3 (3-0-0) 3 Ottage Programming Fieldwork for DH Dimensions of Language HSL575 Narrative Fieldwork Matters Methods HSL581 HSL585 Archival Intro to Methods Digitisation Any Two Form this list Programming for DH Fieldwork Methods Dimensions of Language HSL574 Programming Dimensions for DH HSL575 Narrative Fieldwork Matters HSL575 Narrative <td< td=""><td>(Number, AbbreviProgramme CoreHSN500HSL531HSL551ReadingLiteraryPhilosophicalBootcampTheoryThinking(0-1-0) 1(3.0-0) 3(3.0-0) 3Programme 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Project Part-1 (3-0-0) 3HSL583 Political Throught to Research Project Part-1 (3-0-0) 3HSL583 Political Throught to Research Project Part-1 (3-0-0) 3HSL583 Programme (3-0-0) 3Programming for DH Matters Methods HSL573 Archival for DHHSL574 Fieldwork Methods DigitisationHSD691 Research Project Part II (0-0-8) 4PE-4 (3-0-0) 3Any Two form for DH MethodsHSL575 Fieldwork MethodsHSD691 Research Project Part II (0-0-8) 4PE-4 (3-0-0) 3HSL573 Marrative for DHHSL574 Dimensions of Language DigitisationHSD692 Research Project Part III (0-0-26) 13PE-1 HII (0-0-26) 13HSL573 Marrative fieldwork MattersHSL575 Fieldwork MethodsHSD692 Research Project Part III (0-0-26) 13Fieldwork HSL573</td><td>(Number, Abbreviated Title, L-T-P, creditProgramme CoreProgrammeHSN500 Reading Bootcamp (0-1-0) 1HSL531 Literary (3-0-0) 3HSL551 Philosophical Thinking (3-0-0) 3HSL582 Philosophical Thinking (3-0-0) 3PE-1 (3-0-0) 3Programme CoreResearch ProgrammeHSL571 Social Contemporary Social (3-0-0) 3HSL584 Political (3-0-0) 3HSL583 HSL584 (3-0-0) 3HSL583 HSL583 (3-0-0) 3PE-2 (3-0-0) 3HSL571 Social Contemporary Social (3-0-0) 3HSL574 Political (3-0-0) 3HSL583 (3-0-0) 3PE-2 (3-0-0) 3HSL572 Programming for DH of Language HSL573 HSL574 HSL574 HSL581 HSL581 HSL581 HSL585 Archival HSL573 HSL575 HSL575 Programming for DHHSL574 PE-4 (0-0-8) 4PE-4 (3-0-0) 3PE-5 (3-0-0) 3HSL581 HSL581 HSL581 HSL581 HSL581 HSL573 HSL575 Narrative Fieldwork Matters HSL573 HSL574 HSL574 HSL575 Narrative Fieldwork MattersHSL574 HSL574 Dimensions of Language HSL573 HSL575 Narrative Fieldwork MattersPE-5 (3-0-0) 3OE-2 (3-0-0) 3HSL571 (0-0-26) 13HSL692 Language (0-0-26) 13PE-2 Fart II II (0-0-26) 13OE-2 (3-0-0) 3HSL573 (SL574 Narrative Fieldwork Matters Matters MethodsHSL585 HSL575 Fieldwork Matters MethodsHSL585 HSL575 Fieldwork Matters MethodsOE-2 COE-2 (3-0-0) 3</td><td>$\begin{tabular}{ c c c c } \hline (Number, Abbreviated Title, L-T-P, credits) \\ \hline Programme Core & Programme Electives \\ \hline HSN500 & HSL531 & Literary & Philosophical Theory & Theory & Thinking & Theory & Thinking & Theory & Thinking & Theory & Thinking & Theory & Core & Research & Programme Electives \\ \hline Programme Core & Research & Programme Electives \\ \hline HSL571 & HSL584 & HSL583 & HSD690 & PE-2 & (3.0-0) 3 & Theory & Political Thought & Theory & (3.0-0) 3 & Theory & Core & Research & Project & Part-1 & (0.0-6) 3 & PE-2 & (3.0-0) 3 & (3.0-0) 3 & Theory & Theory & Theory & Theory & Oscial & Thought & Theory & (3.0-0) 3 & Theory & Oscial & Thought & Theory & (3.0-0) 3 & Theory & Political & Thought & Theory & (3.0-0) 3 & Theory & Political & Thought & Theory & (3.0-0) 3 & Theory & Theory & Programme & Core & Research & Programme Electives & Open & HSL572 & HSL574 & HSD691 & PE-4 & (3.0-0) 3 & Gamma & Gamma & Project & Part II & (3.0-0) 3 & Gamma & Gamma & Gamma & Project & Part II & (3.0-0) 3 & Gamma & G$</td><td>(Number, Abbreviated Title, L-T-P, credits)Programme CoreProgramme ElectivesColloquiumHSL531 Bootcamp (0-1-0) 1HSL551 HSL531 (3-0.0) 3HSL552 HSL582 (3-0.0) 3PE-1 (3-0.0) 3NGU-1 Department SeriesProgramme CoreResearch Programme CoreProgramme ElectivesColloquiumHSL571 Contemporary Social Thought (3-0.0) 3HSL583 Introduction to Research Program (3-0.0) 3PE-2 (3-0.0) 3ColloquiumHSL574 Programming (3-0.0) 3HSL574 HSL572 HSL573HSL574 HSL574 Intro toHSD691 PE-4 (3-0.0) 3PE-5 (3-0.0) 3ColloquiumHSL572 Programming for DH MattersHSL574 HSL575 HSL573 HSL575 HSL573HSL574 HSL574 HSL575 HSL575 HSL573 HSL575 HSL575 HSL573 HSL575 HSL575 HSL575 HSL575 HSL575 HSL575 HSL575 HSL575 HSL575 HSL575 HSL575 HSL575 HSL575 HSL581 HSL581 HSL585 HSL581 HSL585 HSL585 HSL585 HSL585 HSL585 HSL581 HSL585 HSL585 HSL581 HSL585 HS</td><td>$\begin{tabular}{ c c c c c c } \hline \$V\$ \$V\$ \$V\$ \$V\$ \$V\$ \$V\$ \$V\$ \$V\$ \$V\$ \$</td><td>$\begin{tabular}{ c c c c c c } \hline Programme Core & Programme Electives & Colloquium & ISLS31 \\ Literary Theory & HSL531 \\ Literary Theory & Theory$</td><td>$\begin{tabular}{ c c c c c c } \hline Programme Electives & Colloquium & Version & Versio$</td><td>Image: Programme Core Programme Electives Colloquium Image: Programme Core Image: Programme Core NGU-1 Department Series 4 12 0 0 10-10)1 (3-0)3 HSL531 (3-0)3 HSL551 (3-0)3 HSL582 (3-0)3 PE-1 (3-0)3 NGU-1 Department Series Lever Methods 1 12 0 0 10-10)1 (3-0)3 HSL582 (3-0)3 HSL582 (3-0)3 PE-1 (3-0)3 NGU-1 Department Series 1 1 1 0 0 11 Forgramme Core Research Methods HSD690 (3-0)3 PF-2 (3-0)3 PE-3 (3-0)3 NGU-1 (3-0)3 NGU-1 Seminar Department Series 5 15 15 0 15 0 Research Programme Electives Open Colloquium Series 5 15 15 0 15 NGU-1 (3-0)3 PE-4 Programme Electives Open Colloquium Series 5 15 15 0 15 NGU-1 Programming for DH HSL574 HSL575 HSL692 HSL574 PE-4 Programming for DH PE-5 Programming O</td><td>Programme Core Programme Electives Colloquium HSN500 Reading Bootcamp (0-1-0) 1 HSL531 Literary (3-0.0) 3 HSL551 HSL551 (3-0.0) 3 HSL552 Have x (3-0.0) 3 HSL551 HSL582 (3-0.0) 3 NGU-1 Series NGU-1 Department Series 4 12 0 0 12 Programme Core Research Thought (3-0.0) 3 HSL584 HSL583 PF-1 (3-0.0) 3 NGU-1 Department Series NGU-1 Department Series 5 15 15 0 15 Social Contemporary Social Thought (3-0.0) 3 HSL584 HSL583 HSL580 (3-0.0) 3 HSL584 (3-0.0) 3 PF-2 (3-0.0) 3 0 0 15 15 15 15 0 15 Programme Core for DH for DH Archival Methods HSL574 HSL575 HSL575 HSD691 (0-0.8) 4 PF-4 (0-0.8) 4 PE-5 (0-0.0) 3 OE-1 (0-0.0) 3 NGU-1 Bepartment Series 5 13 0 0 13 Archival Methods HSL576 (0-0.8) 4 HSL581 (0-0.8) 4 PE-4 (0-0.8) 4 PE-5 (0-0) 3 OE-1 (0-0.0) 3 NGU-1 (0-0.9) 3 5 13 0 0 13 Programming for DH Methods HSL577 Dimensions o</td><td>$\begin{array}{ c c c c c } \hline Programme Core & Programme Electives & Colloquium & ISLS31 \\ Reading Bootcamp (0.1-0) 1 & ISLS31 \\ Iterary Theory (3-0.0) 3 & ISLS51 \\ (0.1-0) 1 & ISLS31 \\ (0.1-0) 3 & ISLS51 \\ Introduction \\ for DH \\ ISLS572 \\ Intro to \\ ISLS572 \\ Intro to \\ ISLS575 \\ INT to to \\ ISLS575 \\ INT$</td><td>$\begin{array}{ c c c c c } \hline Programme Core & Programme Electives Collequium & ISUS00 \\ Reading Bootcamp (0-10) 1 & ISES31 \\ Iterary Theory (3-0.0) 3 & ISES31 \\ (0-10) 1 & ISES31 \\ (0-10) 1 & ISES31 \\ (0-10) 1 & ISES31 \\ (0-10) 3 & ISES31 \\ Introduction Research Programme Electives Collequium \\ Programme Core & Research Programme Electives Collequium \\ Programme Core & Research Programme Electives Collequium \\ Programme Core & Research Programme Electives Collequium \\ (3-0.0) 3 & ISES31 \\ (3-0.0) 3 & ISES31 \\ Introduction Research Programme Electives Collequium \\ Programme Core & Research Project Part III \\ Pr$</td></td<>	(Number, AbbreviProgramme CoreHSN500HSL531HSL551ReadingLiteraryPhilosophicalBootcampTheoryThinking(0-1-0) 1(3.0-0) 3(3.0-0) 3Programme CoreHSL571HSL584HSL583ContemporaryPoliticalIntroductionSocialThoughtto ResearchTheory(3.0-0) 3(3.0-0) 3SocialThoughtto ResearchTheory(3.0-0) 3(3.0-0) 3SocialThoughtto ResearchProgrammingDimensionsResearchProgrammingDimensionsResearchFor DHFieldwork(0.0-8) 4MattersMethodsPart IINarrativeFieldwork(0.0-8) 4MattersDigitisationAny Two Form this listProgrammingDimensionsResearchProgrammingDigitisationResearchMattersHSL574HSD692ResearchDigitisationAny Two Form this listHSD692ProgrammingDimensionsfor DHof LanguageHSL573HSL574ProgrammingDimensionsfor DHof LanguageHSL573HSL575NarrativeFieldworkMattersMethodsHSL581HSL585NarrativeFieldworkMattersMethodsHSL581HSL585ArchivalHSL585Arch	Programme CoreHSN500 Reading Bootcamp (0-1-0) 1HSL531 Literary Theory (3-0-0) 3HSL551 Philosophical Thinking (3-0-0) 3HSL582 Theory & Methods in HSS (3-0-0) 3Programme CoreResearch Political Thought (3-0-0) 3HSL583 HSL583 Introduction to Research Project Part-1 (3-0-0) 3HSL584 Political Thought to Research Project Part-1 (3-0-0) 3HSL583 Political Throught to Research Project Part-1 (3-0-0) 3HSL583 Political Throught to Research Project Part-1 (3-0-0) 3HSL583 Programme (3-0-0) 3Programming for DH Matters Methods HSL573 Archival for DHHSL574 Fieldwork Methods 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Theory & Political Thought & Theory & (3.0-0) 3 & Theory & Core & Research & Project & Part-1 & (0.0-6) 3 & PE-2 & (3.0-0) 3 & (3.0-0) 3 & Theory & Theory & Theory & Theory & Oscial & Thought & Theory & (3.0-0) 3 & Theory & Oscial & Thought & Theory & (3.0-0) 3 & Theory & Political & Thought & Theory & (3.0-0) 3 & Theory & Political & Thought & Theory & (3.0-0) 3 & Theory & Theory & Programme & Core & Research & Programme Electives & Open & HSL572 & HSL574 & HSD691 & PE-4 & (3.0-0) 3 & Gamma & Gamma & Project & Part II & (3.0-0) 3 & Gamma & Gamma & Gamma & Project & Part II & (3.0-0) 3 & Gamma & G$	(Number, Abbreviated Title, L-T-P, credits)Programme CoreProgramme ElectivesColloquiumHSL531 Bootcamp (0-1-0) 1HSL551 HSL531 (3-0.0) 3HSL552 HSL582 (3-0.0) 3PE-1 (3-0.0) 3NGU-1 Department SeriesProgramme CoreResearch Programme CoreProgramme ElectivesColloquiumHSL571 Contemporary Social Thought (3-0.0) 3HSL583 Introduction to Research Program (3-0.0) 3PE-2 (3-0.0) 3ColloquiumHSL574 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Master of Technology in Engineering Analysis and Design

Department of Applied Mechanics

The overall credits structure

Cate	gory	PC	PE	00	2		То	l I				
Cree	dits	34	12	6			5					
Program	Core (PC	C)						AML833	Applied Plasticity	3	0	(
APL701	Continu	m Mechanics			3	0	03	APL737	Advanced Design of Machine Elements	3	0	(
APL702		ental Methods for	or Solids and	l Fluids	2	0	2 3	APL736	Multiscale Modelling of Crystalline Materials	3	0	ż
APL703	•	ring Mathematic			3	0	24	APL742	Advanced Biomechanics	3	0	
APL734	•	d Dynamics			3	0	03	APL744				
APL775	Design M	/lethods			3	0	03	APL745	Deep Learning for Mechanics	3	0	
AMP811	Project-I				0	0	12 6	APL746	Environmental Fluid Dynamics	3	0	
AMP812	Project-I	I			0	0	24 12	APL747	Uncertainty Quantification and Propogation	3	0	
								APL765	Fracture Mechanics	3	0	
		Program Electiv	ves)					APL787	Fatigue Failure and Design	3	0	
		er Aided Design					24	APL796	Advanced Solid Mechanics	3	0	
		d Design of Ma				0		APL805	Advanced Finite Element Method	3	0	
APL767		ring Failure Ana					03	AML811	Advanced CFD	3	0	
APL771	•	Optimization and			3		03	APL815	Hydrodynamic Stability	3	0	
APL774		& Analysis of N		,			03	AML816	Compressible Fluid Flow and Gas Dynamics	33	0	
APL776		Design and Fea	isibility Study	/	2	0	44	APL831	Theory of Plates and Shells	3	0	
	(Stream	,			~	~	~ ~	APL835	Mechanics of Composite Materials	3	0	
	•	Failure and Des	ign		3	0			·			
APL871 MCL741		Reliability Engineering			3 3		03 24	Material	s (Program Electives)			
		onics Product D	osian		3		24 24	APL750	Modern Engineering Materials	3	0	
NGL/49	Mechali		esign		5	0	2 4	APL756	Microstructural Characterization of Materials	3	0	
Engineer	ring Mecl	nanics (Progra	m Electives))				APL759	Phase Transformations	3	0	. 1
APL705	Finite El	ement Method			3	0	24	APL763	Micro & Nanoscale Mechanical Behaviour	3	0	
PL711	Advance	d Fluid Mechan	ics		3	0	0 3		of Materials			
APL713	Turbuler	ice and its Mode	eling		3	0	0 3	APL764	Mechanical Behaviour of Biomaterials	3	0	
APL715		of Turbulent Flo	•		3	0	03	APL765	Fracture Mechanics	3	0	
APL716	Fluid Tra	insportation Sys	stems		3	0	03	APL767	Engineering Failure Analysis and Prevention	3	0	
APL720		ational Fluid Dyr			3	0	24	APL	Selected Topics in Material Engineering	3	0	

Semester wise course breakup for two streams

			Cours	205			es	С	ontac	t h/w	reek	its
Sem.		(Numb	ber, Abbreviated		edits)		Lecture courses	L	т	Р	Total	Credits
I	APL775 Design Methods (3-0-0) 3	APL734 Advanced Dynamics (3-0-0) 3	APL703 Engineering Mathematics & Computation (3-0-2) 4	APL701 Continuum Mechanics (3-0-0) 3	APL702 Experimental Methods for Solids & Fluids (2-0-2) 3		5	14	0	4	18	16
II	PE-1	PE-2	PE-3	OE-1			4	12	0	0	12	12
Summer												
III	OE2	AMP811	PE-4				2	6	0	12	18	12
IV	AMP812						0	0	0	24	24	12

Programme Code: **BEM**

3003

Master of Technology in Biomolecular and Bioprocess Engineering Department of Biochemical Engineering and Biotechnology

The overall credits structure

Category	PC	PE	OE	Tota	nt 🛛	
Credits	41	12	-	53		
Program Core					BBL736	,
DDI 774 Missahia		and Malaaulau		0 4	BBI 737	Instrumentation and Analytical Me

							, ,				
BBL771	Microbial Biochemistry and Molecular Biology					BBL737	Instrumentation and Analytical Methods in	2	0	2	3
BBL772	Data Analytics and Informatics in Biotechnology	2	0	2	3		Bioengineering				
BBL773	Applied Mathematics for Biochemical Engg.	3	0	0	3	BBL740	Plant Cell Technology	3	0	2	4
BBL774	Biomolecular Engineering	3	0	2	4	BBL741	Protein Science & Engineering	3	0	0	3
BBL775	Bioreaction Engineering	3	0	3	4.5	BBL742	Biological Waste Treatment	3	0	2	4
BBL731	Bioseparation Engineering	3	0	3	4.5	BBL745	Combinatorial Biotechnology	3	0	0	3
BBD855	1 8 8	0	0	12	26	BBL747	Bionanotechnology	3	0	0	3
BBD856	MTP PART-II	0	0	24	412	BBL749	Cancer Cell Biology	3	0	3	4.5
	Total Credits				41	BBL750	Genome Engineering	2	0	2	3
						BBL752	Microbial Ecology	3	0	0	3
Program	Electives					BBL754	Optics with Life Sciences	3	0	0	3
BBL734	Metabolic Regulation & Engineering	3	0	0	3	BBL757	Electromicrobiology and Bioelectrochemical	3	0	0	3
BBL735	Genomics and Proteomics	2	0	2	3		Systems				

Sem.		Courses			Lecture courses		Conta	act h/we	ek	Credits
Sem.		(Number, Abbreviated Title	e, L-T-P, Credits)		Led	L	т	Р	Total	CLe
I	BBL771 Microbial Biochemistry and Molecular Biology (3.0-2) 4	BBL772 Data Analytics and Informatics in Biotechnology (2-0-2) 3	BBL773 Applied Mathematics for Biochemical Engineering (3-0-0) 3	PE-1	4					13
II	BBL731 Bioseparation Engineering (3-0-3) 4.5	BBL774 Biomolecular Engineering (3-0-2) 4	BBL775 Bioreaction Engineering (3-0-3) 4.5	PE-2	4					16
			1	1						
III	BBD855 Major Project-I (0-0-12) 6		PE-3	PE-4	2					12
IV	BBD856 Major Project-II (0-0-24) 12				0	0	0	24	24	12

Total = 53

3

Master of Technology in Chemical Engineering Department of Chemical Engineering

The overall credits structure

Cate	gory	PC	PE	OE			Total					
Cre	dits	37	12	3			52					
Program	Core							CLL743	Petrochemicals Technology	3	0	
CLD771	Minor Pr	oiect		() (6	3	CLL761		3	0	
CLD781		oject Part-I		(68	CLL762	Advanced Computational Techniques	2	0	
		oject Part-II		(4 12		in Chemical Engineering			
CLL701		g of Transport P	rocesses					CLL766	Interfacial Engineering	3	0	
		u 1	amics, Reaction		2 0			CLL767	Structures and Properties of Polymers	3	0	
		and Reactors	,					CLL768	Fundamentals of Computational Fluid Dynamics	2	0	
CLL703	Process	Engineering		3	3 0	0	3	CLL769	Applications of Computational Fluid Dynamics	2	0	
CLP704	Technica	I Communicatio	on for Chemical	() (2	1	CLL770	Introduction to Microfluidics and Microfabrication	3	0	
	Enginee	rs						CLL771	Introduction to Complex Fluids	3	0	
		d Transport Phe			3 0			CLL772	Transport Phenomena in Complex Fluids	3	0	
CLL733	Industria	I Multiphase Re	actors	3	3 0	0	3	CLL773	Thermodynamics of Complex Fluids	3	0	
	Total Cr	edits					37	CLL774	· · ·	3	0	
rogram	Elective							CLL775	- ,	3	0	
						-		CLL776	Granular Materials	3	0	
LL704		Gas Processing				0		CLL777		3	0	
		m Reservoir En		3				CLL778	Interfacial Behaviour and Transport	3	0	
		m Production E		3					of Biomolecules			
CLL707		on Balance Mod	nical Engineerir	3 1a 3				CLL779	Molecular Biotechnology and in-vitro	3	0	
LL720		nemical Method		iy a					Diagnostics			
			s n and Storage De	-	-			CLL780	Bioprocessing and Bioseparations	3	0	
LL723			uel Cell Technol					CLL781	Process Operations Scheduling	3	0	
LL724		nental Engineer		iogy (CLL782		3	0	
	Manage	0	ing and wable		, 0	0	U		Advanced Process Control	3	0	
LL725		tion Control Eng	aineerina	3	3 0	0	3	CLL784	0	3	0	
LL726			atalytic Reactio			0	3	CLL785	J	3	0	
LL727			and Catalytic Rea		3 0	0	3		Fine Chemicals Technology	3	0	
LL728		Conversion and		3	3 0	0	3	CLL787		3	0	
LL730	Structure	e, Transport and	Reactions	3	3 0	0	3	CLL788	····	3	0	
	in BioNa	no Systems						CLL791	Chemical Product and Process Integration	3	0	
LL732	Advance	d Chemical Eng	gineering	3	B (0	3	CLL792	Chemical Product Development	3	0	
	Thermoo	lynamics						011 -00	and Commercialization	~	~	
LL734			ind Novel React		-	-	-	CLL793	Membrane Science and Engineering	3	0	
LL735			Separation Proce			0	3	CLL794	, , , ,	3	0	
CLL736	•		zation of Multipl	hase 3	B (0	3	CLL798	Selected Topics in Chemical Engineering-I	3	0	
	Reactors							CLL799	Selected Topics in Chemical Engineering-II	3	0	
CLL742		ental Characteri	zation	3	B (0	3	CLV796	Current Topics in Chemical Engineering	1	0	
	of BioMo	cromolecules						CLV797	Recent Advances in Chemical Engineering	2	0	

Sem.			Courses			Lecture courses	С	ontac	t h/we	eek	Credits
		(Number, Abl	previated Title, L-T-P,	credits)		Lec	L	Т	Ρ	Total	ð
I	CLL701 Modelling of Transport Processes (2-0-0) 2	CLL702 Principles of Thermodynamics, Reaction Kinetics and Reactors (2-0-0) 2	CLL703 Process Engineering (3-0-0) 3	PE-1 (3-0-0) 3	PE-2 (3-0-0) 3	5	13	0	0	13	13
II	CLL731 Advanced Transport Phenomena (3-0-0) 3	CLL733 Industrial Multiphase Reactors (3-0-0) 3	CLD771 Minor Project (0-0-6) 3	PE-3 (3-0-0) 3	CLP704 Tech. Commu. Chem. Engineers (0-0-2) 1	3	9	0	8	17	13
Summer											
ш			CLD781 Major Project Part-I (0-0-16) 8	PE-4 (3-0-0) 3	OE-1 (3-0-0) 3	2	6	0	16	22	14
IV			CLD782 Major Project Part-II (0-0-24) 12			0	0	0	24	24	12

Master of Technology in Molecular Engineering : Chemical Synthesis and Analysis Department of Chemistry

The overall credits structure

Category	PC	PE/OE	Total
Credits	42	12	54

CMD806	Major Project Part-I	0	0	18	9
CMD807	Major Project Part-II	0	0	18	9
CML721	Design and Synthesis of Organic Molecules	3	0	0	3
CML724	Synthesis of Industrially Important Inorganic Materials	3	0	0	3
CML726	Cheminformatics and Molecular Modelling	3	0	0	3
CMP728	Instrumentation Laboratory	0	0	6	(
CML729	Material Characterization	3	0	0	(
CML731	Chemical Separation and Electroanalytical Methods	3	0	0	3
CML737	Applied Spectroscopy	3	0	0	(
CMP722	Synthesis of Organic and Inorganic Compounds	0	0	6	:
	Total Credits				4

Program Electives

CMD799	Minor Project	0	0	6	3
CML723	Principles and Practice of NMR and	3	0	0	3
	Optical Spectroscopy				
CML733	Chemistry of Industrial Catalysts	3	0	0	3
CML735	Biosynthetic Approach Towards	3	0	0	3
	Natural Products				
CML734	Chemistry of Nanostructured Materials	3	0	0	3
CML738	Applications of P-block Elements and their	3	0	0	3
	Compounds				
CML739	Applied Biocatalysis	3	0	0	3
CML740	Chemistry of Heterocyclic Compounds	3	0	0	3
CML741	Organo and Organometallic Catalysis	3	0	0	3
CML742	Reagents in Synthetic Transformations	3	0	0	3
CML743	Physical Organic Chemistry Advanced	3	0	0	3
CML801	Molecular Modelling and	3	0	0	3
	Simulations: Concepts and Techniques				

Sem.			Courses				Lecture courses	C	Contac	t h/we	ek	Credits
Jem.		(Number,	Abbreviated Title,	L-T-P, credits)		Cou	L	Т	Р	Total	L a
I	CML721 Design & Synthesis (3-0-0) 3	CML726 Cheminformatics (3-0-0) 3	CML731 Separation & Electroanalytical (3-0-0) 3	CMP722 Lab on Synthesis (0-0-6) 3	PE-1 (3-0-0) 3		4	12	0	6	18	15
II	CML724 Inorganic Materials (3-0-0) 3	CML729 Material Characterization (3-0-0) 3	CML737 Applied Spectroscopy (3-0-0) 3	CMP728 Instru. Lab. (0-0-6) 3	PE-2 (3-0-0) 3		4	12	0	6	18	15
III	CMD805 Major Project Part-I (0-0-12) 6	PE-3 (3-0-0) 3	PE-4 (3-0-0) 3				2	6	0	18	24	12
IV	CMD807 Major Project Part-II (0-0-24) 12						0	0	0	18	18	12

Total = 54

Programme Code: CEC Master of Technology in Construction Technology and Management

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Department of Civil Engineering

The overall credits structure T

Cate		PC	PE	OE				Total	
Cre	dits	37.5	15	0				52.5	
Program	Core								EI
CVC771		In Construction	Tochnology	and	0	0	2	0	EL
500771	Manager		r recritiology a	anu	0	0	2	0	EI
NC772	0	In Construction	Tochnology	and	0	0	2	0	El
500112	Manage		r recritiology a	inu	0	0	2	0	El
CVD772		oject Part-I (CE	C)		0	0	18	9	El
		oject Part-II (CE			0			12	El
CVL772		ction Project Ma			3			3	El
CVL773		tive Methods in			3		0	3	
	Manage	ment							El
CVL774	Construc	ction Contract M	lanagement		3	0	0	3	EI
CVL775		ction Economics			3	0	0	3	El
CVL776	Construc	ction Practices a	and Equipmen	t	3	0	0	3	El
CVP772	Computa	ational Laborato	ry for Constru	ction	0	0	3	1.5	El
	Manage	ment							El
	Total Cr	edits					3	7.5	El
							•		El
Program	Elective	s for All Backg	round						
CVD771		oject (CEC)			0	0	6	3	El
CVS771		dent Study (CE0	2)		0	3	0	3	El
		ins Planning and			3	0	0	3	EL
		Chain Managem			3	0	0	3	El
	Logistics	-	ont		3	0	0	3	El
MCL771	0	, ngineering and L	ife Cycle Cos	tina	3	0	0	3	El
	HRM Sy			ung	2	0	0	1.5	El
		nent Manageme	ent		3	0	0	3	
MSL822		onal Business			3	0	0	3	El
MSL846	Total Pro	ductivity Manag	gement		3	0	0	3	
MCL772	Reliabilit	y Engineering			3	0	0	3	El
Program	Elective	s for Civil Engi	neering Back	ground	d				El
EEL747	Electrica	I Systems for Co	onstruction Ind	ustries	3	0	2	4	EI
CVL702	Ground	Improvement ar	nd Geosynthet	ics	3	0	0	3	El
CVL714	Field Exp	oloration and Geo	otechnical Proc	cesses	3	0	0	3	El
CVL715	Excavati	on Methods and	d Underground	b	3	0	0	3	El
	•	echnology							El
CVL727		nental risk asse			3	0	0	3	El
CVL747		rtation Safety ar		nt	3	0	0	3	El
CVL750		nt Transportation	n Systems		3	0		3	El
CVL765		e Mechanics	h l .		3	0	0	3	El
CVL771		d Concrete Tec	nnology		3	0	0	3	El
CVL777	Building				3	0	0	3	El
CVL778	-	Services and M	aintenance		3	0	0	3	El
	Manage		Structures		2	0	^	3	El
CVL779 CVL820		rk for Concrete : nental Impact A			3 3	0 0	0 0	3 3	El
CVL838		hic Information			3 2	0	2	3 3	El
CVL840		and Design of S			2 3	0	2	3	El
		t Systems			5	0	0	-	
CVL871	•	y and Repair of	Concrete Stri	ictures	3	0	0	3	El
CVL872		cture Developme			3	0	0	3	El
	Manager	•			-	5	5	-	El
CVL873	-	ineering and De	esian		3	0	0	3	El
CVL874	-	and Safety in Co	-		3		0	3	E
CVL875	-	ble Materials ar		dinas	3		0	3	E
					-	5	5	-	E
•rogram	Elective	s for Electrical	Engineering	Backg	rou	nd			E
		ystems Theory			3		0	3	E
ELL700		,							
ELL700 ELL712	Digital C	ommunications			3	0	0	3	E
		ommunications g of Electrical N	lachines		3 3	0 0	0 0	3 3	E

ELL752Electric Drive System300ELL753Physical Phenomena in Electrical Machines300ELL754Permanent Magnet Machines300ELL755Variable Reluctance Machines300ELL756Special Electrical Machines300ELL757Energy Efficient Motors300ELL758Power Electronic Converters for Renewable300ELL761Power Electronics for Utility Interface300ELL762Intelligent Motor Controllers300ELL763Advanced Electric Drives300ELL764Apoliance Systems300ELL765Smart Grid Technology300ELL766Appliance System Protection300ELL777Power System Analysis300ELL777Power System Dynamics300ELL777Power System Optimization300ELL777Power System Optimization300ELL775Power System Optimization300ELL775Power System Optimization300ELL777Power System Optimization300ELL777Power System Optimization300ELL775Power System Optimization300ELL775Power System Optimization30 <th></th> <th></th> <th></th> <th></th> <th></th> <th></th>						
ELL753Physical Phenomena in Electrical Machines300ELL754Permanent Magnet Machines300ELL755Variable Reluctance Machines300ELL756Special Electrical Machines300ELL757Energy Efficient Motors300ELL758Power Clectronic Converters for Renewable300ELL760Switched Mode Power Conversion300ELL761Power Electronics for Utility Interface300ELL762Intelligent Motor Controllers300ELL763Advanced Electric Drives300ELL764Electric Vehicles300ELL776Smart Grid Technology300ELL776Mechatronics300ELL777Power System Analysis300ELL777Power System Optimization300ELL777Power System Optimization300ELL776Advanced Power System Optimization300ELL775Power System Settems300ELL776Advanced Topics in Electrical Machines300ELL777Power System Settems300ELL778Advanced Topics in Electrical Machines300ELL775Power System Optimization300ELL775Domatic Adide Design of <br< td=""><td>FI I 752</td><td>Electric Drive System</td><td>3</td><td>0</td><td>0</td><td>3</td></br<>	FI I 752	Electric Drive System	3	0	0	3
ELL754Permanent Magnet Machines300ELL755Variable Reluctance Machines300ELL756Special Electrical Machines300ELL757Energy Efficient Motors300ELL758Power Quality300ELL759Power Electronic Converters for Renewable300ELL760Switched Mode Power Conversion300ELL761Power Electronics for Utility Interface300ELL762Intelligent Motor Controllers300ELL764Electric Vehicles300ELL765Smart Grid Technology300ELL767Mechatronics300ELL770Power System Analysis300ELL771Advanced Power System Protection300ELL773Pinning and Operation of Asmart Grid300ELL774Flexible AC Transmission system300ELL775Power System Dynamics300ELL776Advanced Power System Optimization300ELL777Power System Operation and control300ELL777Power System Operation and control300ELL777Power System Protectionics300ELL777Power System Control of Power Electronics300ELL777Power System C		•				3
ELL755Variable Reluctance Machines300ELL756Special Electrical Machines300ELL757Power Quality300ELL758Power Quality300ELL759Power Electronic Converters for Renewable Energy Systems300ELL761Power Electronics for Utility Interface300ELL762Intelligent Motor Controllers300ELL764Electric Vehicles300ELL765Smart Grid Technology300ELL766Appliance Systems300ELL776Mechatronics300ELL777Power System Analysis300ELL777Power System Dynamics300ELL777Flexible AC transmission system300ELL777Power System Operation and control300ELL777Power System Operation and control300ELL777Power System Operation and control300ELL778Dynamic Modelling And Control300ELL779Power System Settems300ELL779Dower Systems300ELL775Dordert Alded Design of Electrical Machines300ELL775Dordert Alded Dopics in Electrical Machines300ELL850Advanced Topics in Electri		-				3
ELL756Special Electrical Machines300ELL757Energy Efficient Motors300ELL758Power Quality300ELL759Power Electronic Converters for Renewable Energy Systems300ELL761Power Electronics for Utility Interface300ELL761Power Electronics for Utility Interface300ELL761Intelligent Motor Controllers300ELL764Electric Vehicles300ELL765Smart Grid Technology300ELL776Mechatronics300ELL777Power System Analysis300ELL777Power System Analysis300ELL771Advanced Power System Protection300ELL774Flexible AC Transmission system300ELL775Power System Dynamics300ELL776Advanced Power System Optimization300ELL777Power System Dynamics300ELL778Digital Control of Power Electronics300ELL850Digital Control of Power Electronics300ELL851Computer Aided Design of Electrical Machines300ELL854Advanced Topics in Electrical Machines300ELL854Selected Topics in Electric Drives300 <td></td> <td>-</td> <td></td> <td></td> <td></td> <td>3</td>		-				3
ELL757Energy Efficient Motors300ELL758Power Quality300ELL759Power Electronic Converters for Renewable300ELL760Switched Mode Power Conversion300ELL761Power Electronics for Utility Interface300ELL761Power Electronics for Utility Interface300ELL763Advanced Electric Drives300ELL764Electric Vehicles300ELL765Smart Grid Technology300ELL766Appliance Systems300ELL770Power System Analysis300ELL771Advanced Power System Protection300ELL771Advanced Power System Protection300ELL774Planning and Operation of a Smart Grid300ELL775Power System Optamission300ELL776Advanced Power System Optimization300ELL777Power System operation and control300ELL775Power System Optimization300ELL775Power System Optimization300ELL776Advanced Topics in Electrical Machines300ELL777Power System Converters300ELL775Selected Topics in Electrical Machines300ELL850A						3
ELL758Power Quality300ELL759Power Electronic Converters for Renewable Energy Systems300ELL760Switched Mode Power Conversion300ELL761Power Electronics for Utility Interface300ELL762Intelligent Motor Controllers300ELL764Electric Vehicles300ELL765Smart Grid Technology300ELL766Appliance Systems300ELL777Power System Analysis300ELL777Power System Analysis300ELL777Power System Analysis300ELL777Power System Analysis300ELL777Power System Dynamics300ELL777Power System Dynamics300ELL775Power System Operation and control300ELL776Advanced Power System Optimization300ELL775Dynamic Modelling And Control300Of Sustainable Energy Systems3000ELL850Digital Control of Power Electronics300ELL851Computer Aided Design of Electrical Machines300ELL855Selected Topics in Electrical Machines300ELL856Advanced Topics in Electrical Machines300ELL855		•				3
ELL759 Power Electronic Converters for Renewable Energy Systems 3 0 0 ELL760 Switched Mode Power Conversion 3 0 0 ELL761 Switched Mode Power Conversion 3 0 0 ELL761 Newer Electronics for Utility Interface 3 0 0 ELL764 Electric Vehicles 3 0 0 ELL764 Electric Vehicles 3 0 0 ELL764 Advanced Electric Drives 3 0 0 ELL767 Mechatronics 3 0 0 ELL776 Advanced Power System Protection 3 0 0 ELL777 Power System Dynamics 3 0 0 ELL775 Power System Optimization 3 0 0 ELL776 Advanced Power System Optimization 3 0 0 ELL777 Power System Optimization 3 0 0 ELL776 Advanced Power System Optimization 3 0 0 </td <td></td> <td></td> <td></td> <td></td> <td></td> <td>3</td>						3
Energy Systems I 0 0 ELL760 Switched Mode Power Conversion 3 0 0 ELL761 Power Electronics for Utility Interface 3 0 0 ELL763 Advanced Electric Drives 3 0 0 ELL764 Electric Vehicles 3 0 0 ELL765 Smart Grid Technology 3 0 0 ELL764 Mechatronics 3 0 0 ELL771 Mechatronics 3 0 0 ELL771 Advanced Power System Protection 3 0 0 ELL774 Planing and Operation of a Smart Grid 3 0 0 ELL775 Power System Dynamics 3 0 0 ELL776 Advanced Power System Optimization 3 0 0 ELL775 Power System Optimization 3 0 0 ELL776 Advanced Topices in Electrical Machines 3 0 0 ELL777 Power System C						3
ELL761Power Electronics for Utility Interface300ELL762Intelligent Motor Controllers300ELL763Advanced Electric Drives300ELL764Electric Vehicles300ELL765Smart Grid Technology300ELL767Mechatronics300ELL770Power System Analysis300ELL771Power System Analysis300ELL772Planning and Operation of a Smart Grid300ELL773High Voltage DC Transmission300ELL774Flexible AC Transmission system300ELL775Power System Opnamics300ELL776Advanced Power System Optimization300ELL776Dynamic Modelling And Control of Sustainable Energy Systems300ELL850Digital Control of Power Electronics300ELL851Computer Aided Design of Electrical Machines300ELL852Condition Monitoring of Electrical Machines300ELL854Selected Topics in Electrical Machines300ELL855High Power Converters300ELL856Advanced Topics in Electric Drives300ELL856Advanced Topics in Electric Drives300ELL856Advanced Topics in Electric Drives	ELL/39	Energy Systems	-	0	0	
ELL762 Intelligent Motor Controllers 3 0 0 ELL763 Advanced Electric Drives 3 0 0 ELL764 Electric Vehicles 3 0 0 ELL765 Smart Grid Technology 3 0 0 ELL767 Mechatronics 3 0 0 ELL770 Power System Analysis 3 0 0 ELL771 Advanced Power System Protection 3 0 0 ELL771 Panning and Operation of a Smart Grid 3 0 0 ELL774 Flexible AC Transmission system 3 0 0 ELL775 Power System Operation and control 3 0 0 ELL776 Advanced Power System Optimization 3 0 0 ELL777 Power System Operation and control 3 0 0 ELL778 Dynamic Modelling And Control 3 0 0 ELL778 Dynamic Modelling of Electrical Machines 3 0 0 ELL850 Digital Control of Power Electronics 3 0			3	0	0	3
ELL763Advanced Electric Drives300ELL764Electric Vehicles300ELL765Smart Grid Technology300ELL767Appliance Systems300ELL767Mechatronics300ELL770Power System Analysis300ELL771Advanced Power System Protection300ELL772Planning and Operation of a Smart Grid300ELL774Flexible AC Transmission system300ELL775Power System Dynamics300ELL776Advanced Power System Optimization300ELL777Power System operation and control300ELL777Power System operation and control300ELL870Digital Control of Power Electronics300ELL850Digital Control of Power Electronics300ELL851Condition Monitoring of Electrical Machines300ELL852Selected Topics in Electrical Machines300ELL854Selected Topics in Electrical Machines300ELL855Advanced Topics in Electric Drives300ELL854Selected Topics in Electric Drives300ELL855Selected Topics in Electric Drives300ELL855Selected Topics in Electric Drives30	ELL761	· · · · · · · · · · · · · · · · · · ·	3	0	0	3
ELL764Electric Vehicles300ELL765Smart Grid Technology300ELL766Appliance Systems300ELL770Power System Analysis300ELL771Advanced Power System Protection300ELL772Planning and Operation of a Smart Grid300ELL773High Voltage DC Transmission300ELL774Flexible AC Transmission system300ELL775Power System Optimization300ELL776Advanced Power System Optimization300ELL776Advanced Power System Optimization300ELL776Dynamic Modelling And Control300OfDigital Control of Power Electronics300ELL850Digital Control of Power Electronics300ELL851Computer Aided Design of Electrical Machines300ELL852Condition Monitoring of Electrical Machines300ELL854Selected Topics in Electrical Machines300ELL855Advanced Topics in Electric Drives300ELL856Advanced Topics in Electric Drives300ELL857Selected Topics in Power System300ELL854Advanced Topics in Power System300ELL855Selected Topics in Power System <t< td=""><td>ELL762</td><td></td><td>3</td><td>0</td><td>0</td><td>3</td></t<>	ELL762		3	0	0	3
ELL765Smart Grid Technology300ELL766Appliance Systems300ELL777Mechatronics300ELL771Advanced Power System Protection300ELL772Planning and Operation of a Smart Grid300ELL773High Voltage DC Transmission system300ELL774Flexible AC Transmission system300ELL775Power System Opmatics300ELL776Advanced Power System Optimization300ELL777Power System operation and control300ELL778Dynamic Modelling And Control300Of Sustainable Energy Systems100ELL850Digital Control of Power Electronics300ELL851Computer Aided Design of Electrical Machines300ELL852Condition Monitoring of Electrical Machines300ELL855High Power Converters3000ELL854Selected Topics in Power Electronics300ELL855Advanced Topics in Electric Drives300ELL854Advanced Topics in Electric Drives300ELL855Advanced Topics in Power System300ELL854Selected Topics in Power System300ELL855Narder Power System Transient30<	ELL763	Advanced Electric Drives	3	0	0	3
ELL766 Appliance Systems 3 0 0 ELL767 Mechatronics 3 0 0 ELL770 Power System Analysis 3 0 0 ELL771 Advanced Power System Protection 3 0 0 ELL771 High Voltage DC Transmission 3 0 0 ELL774 Flexible AC Transmission system 3 0 0 ELL775 Power System Dynamics 3 0 0 ELL776 Advanced Power System Optimization 3 0 0 ELL777 Power System Operation and control 3 0 0 ELL777 Power System Systems 3 0 0 ELL777 Power System System Control of Power Electronics 3 0 0 ELL850 Digital Control of Power Electronics 3 0 0 ELL851 Computer Aided Design of Electrical Machines 3 0 0 ELL852 Selected Topics in Electrical Machines 3 0 0 ELL854 Advanced Topics in Electric Drives 3 <t< td=""><td>ELL764</td><td></td><td></td><td>0</td><td>0</td><td>3</td></t<>	ELL764			0	0	3
ELL767Mechatronics300ELL770Power System Analysis300ELL771Advanced Power System Protection300ELL772Planning and Operation of a Smart Grid300ELL774Flexible AC Transmission system300ELL775Power System Dynamics300ELL776Advanced Power System Optimization300ELL776Advanced Power System Optimization300ELL777Power System operation and control300ELL778Dynamic Modelling And Control300of Sustainable Energy Systems300ELL851Computer Aided Design of Electrical Machines300ELL852Condition Monitoring of Electrical Machines300ELL853Advanced Topics in Electrical Machines300ELL854Selected Topics in Power Electronics300ELL855High Power Converters300ELL856Advanced Topics in Electric Drives300ELL857Selected Topics in Nower Electronics300ELL858Advanced Topics in Power System300ELL857Selected Topics in Power System300ELL858Advanced Topics in Power System300ELL859Selected Topics in Power System3 </td <td>ELL765</td> <td>Smart Grid Technology</td> <td></td> <td>0</td> <td>0</td> <td>3</td>	ELL765	Smart Grid Technology		0	0	3
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ELL772Planning and Operation of a Smart Grid300ELL773High Voltage DC Transmission system300ELL774Flexible AC Transmission system300ELL775Power System Dynamics300ELL776Advanced Power System Optimization300ELL777Power System operation and control300ELL778Dynamic Modelling And Control300of Sustainable Energy Systems300ELL850Digital Control of Power Electronics300and Drive Systems200ELL851Computer Aided Design of Electrical Machines300ELL853Advanced Topics in Electrical Machines300ELL854Selected Topics in Electrical Machines300ELL855High Power Converters300ELL856Advanced Topics in Power Electronics300ELL857Selected Topics in Electric Drives300ELL874Distribution System Operation and Planning300ELL875Selected Topics in Power System300ELL875Selected Topics in Power System300ELL855Advanced Topics in Power System300ELL857Selected Topics in Power System300ELL875Selected Topics in Power System<	ELL770	Power System Analysis	3	0	0	3
ELL773High Voltage DC Transmission300ELL774Flexible AC Transmission system300ELL775Power System Dynamics300ELL776Advanced Power System Optimization300ELL777Power System operation and control300ELL778Dynamic Modelling And Control300ELL778Dynamic Modelling And Control300ELL850Digital Control of Power Electronics300and Drive Systems3000ELL851Computer Aided Design of Electrical Machines300ELL852Condition Monitoring of Electrical Machines300ELL854Selected Topics in Electrical Machines300ELL855High Power Converters300ELL856Advanced Topics in Power Electronics300ELL857Selected Topics in Electric Drives300ELL858Advanced Topics in Electric Drives300ELL859Selected Topics in Power System300ELL871Distribution System Operation and Planning00EL872Selected Topics in Power System300EL873Power System Transient300EL874Power System Caboratory003EL8750Electrical Machines Laboratory0 <td< td=""><td>ELL771</td><td>Advanced Power System Protection</td><td>3</td><td>0</td><td>0</td><td>3</td></td<>	ELL771	Advanced Power System Protection	3	0	0	3
ELL774Flexible AC Transmission system300ELL775Power System Dynamics300ELL776Advanced Power System Optimization300ELL777Power System operation and control300ELL778Dynamic Modelling And Control300of Sustainable Energy Systems00ELL850Digital Control of Power Electronics300and Drive Systems300ELL851Computer Aided Design of Electrical Machines300ELL852Condition Monitoring of Electrical Machines300ELL853Advanced Topics in Electrical Machines300ELL854Selected Topics in Power Electronics300ELL855High Power Converters300ELL856Advanced Topics in Electric Drives300ELL857Selected Topics in Electric Drives300ELL858Advanced Topics in Electric Drives300ELL859Selected Topics in Power System300ELL871Distribution System Operation and Planning00ELL872Selected Topics in Power System300ELL857Power System Reliability300ELL857Power System Reliability300ELL858DSP Based Control of Power Electronics and Drives Laboratory <t< td=""><td>ELL772</td><td>Planning and Operation of a Smart Grid</td><td>3</td><td>0</td><td>0</td><td>3</td></t<>	ELL772	Planning and Operation of a Smart Grid	3	0	0	3
ELL775Power System Dynamics300ELL776Advanced Power System Optimization300ELL777Power System operation and control300ELL778Dynamic Modelling And Control300of Sustainable Energy Systems300ELL850Digital Control of Power Electronics300and Drive Systems300ELL851Computer Aided Design of Electrical Machines300ELL852Condition Monitoring of Electrical Machines300ELL853Advanced Topics in Electrical Machines300ELL854Selected Topics in Electrical Machines300ELL855High Power Converters300ELL856Advanced Topics in Power Electronics300ELL857Selected Topics in Electric Drives300ELL858Advanced Topics in Electric Drives300ELL870Restructured Power System300ELL871Distribution System Operation and Planning003ELL872Selected Topics in Power System300ELL873Power System Reliability300ELL874Power System Transient300ELL875Electrical Machines CAD Laboratory03ELP850Electrical Machines CAD Laboratory01 <td>ELL773</td> <td>High Voltage DC Transmission</td> <td>3</td> <td>0</td> <td>0</td> <td>3</td>	ELL773	High Voltage DC Transmission	3	0	0	3
ELL776Advanced Power System Optimization300ELL777Power System operation and control300ELL778Dynamic Modelling And Control300of Sustainable Energy Systems300ELL850Digital Control of Power Electronics300and Drive Systems20300ELL851Computer Aided Design of Electrical Machines300ELL852Condition Monitoring of Electrical Machines300ELL853Advanced Topics in Electrical Machines300ELL854Selected Topics in Electrical Machines300ELL855High Power Converters300ELL856Advanced Topics in Power Electronics300ELL857Selected Topics in Electric Drives300ELL858Advanced Topics in Electric Drives300ELL870Restructured Power System300ELL871Distribution System Operation and Planning00ELL872Selected Topics in Power System300ELL873Power System Reliability300ELL874Power System Reliability300ELL875Electrical Machines CAD Laboratory03ELP850Electrical Machines CAD Laboratory01ELP851Power System Lab I01	ELL774	Flexible AC Transmission system	3	0	0	3
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ESL734Nuclear Energy300ESL740Non-conventional Sources of Energy300ESL746Hydrogen Energy300ESL768Wind Energy and Hydro Power Systems300ESL770Solar Energy Utilization300	ESL732	Bioconversion and Processing of Waste	3	0	0	3
ESL746Hydrogen Energy300ESL768Wind Energy and Hydro Power Systems300ESL770Solar Energy Utilization300				0	0	3
ESL768Wind Energy and Hydro Power Systems300ESL770Solar Energy Utilization300	ESL740	Non-conventional Sources of Energy	3	0	0	3
ESL770 Solar Energy Utilization 3 0 0						3
						3
ESL870 Fusion Energy 3 0 0						3
	ESL870	Fusion Energy	3	0	0	3

Program Electives for Mechanical Engineering Background

Program	Electives for Mechanical Engineering Bac	kgr	ou	nd		MCL780	Casting Technology	3	0	2	4
EEL747	Electrical Systems for Construction Industries	3	0	2	4	MCL781	Machining Processes and Analysis	3	0	2	4
ESL768	Wind Engery & Hydro Power System	3	0	0	3	MCL783	Automation in Manufacturing	3	0	2	4
ITL709	Maintenance Planning and Control	3	0	0	3	MCL784	Computer Aided Manufacturing	3	0	2	4
ITL752	Bulk Materials Handling	2	0	2	3	MCL785	Advanced Machining Processes	3	0	0	3
MCL749	Mechatronics Product Design	3	0	2	4	MCL787	Welding Science and Technology	3	0	2	4
MCL751	Industrial Engineering Systems	1	0	4	3	MCL788	Surface Engineering	3	0	2	4
MCL753	Manufacturing Informatics	3	0	2	4	MCL791	Processing and Mechanics of Composite	3	0	2	4
MCL755	Service System Design	3	0	0	3		Materials				
MCL769	Metal Forming Analysis	3	0	2	4	MCL792	Injection Molding and Mold Design	2	0	2	3
MCL776	Advances in Metal Forming	3	0	0	3	MCL818'	⁺ Heating, Ventilating and Air-conditioning	3	0	2	3
MCL778	Design and Metallurgy of Welded Joints	3	0	2	4	MCL866	Maintenance Management	3	0	0	3

Sem.			Courses				Lecture courses	C	Contac	t h/we	ek	Credits
Jein.		(Number,	Abbreviated Titl	e, L-T-P, Credits)			Cou	L	Т	Ρ	Total	Cre
I	CVL772 Construction Project Management (3-0-0) 3	CVL773 Quantitative Methods in Construction Management (3-0-0) 3	CVP772 Computational Laboratory for Construction Management (0-0-3) 1.5	CVC771 Seminar In Construction Technology and Management-I (0-0-2) 0	PE-1 (3-0-0) 3	PE-2 (3-0-0) 3	4	12	0	5	17	13.5
п	CVL775 Construction Economics and Finance (3-0-0) 3	CVL776 Construction Practices and Equipment (3-0-0) 3	CVL774 Construction Contract Management (3-0-0) 3	CVC772 Seminar In Construction Technology and Management-II (0-0-2) 0	PE-3 (3-0-0) 3		4	12	0	2	14	12
Summe	er											
ш	CVD772 Major Project Part-I (CEC) (0-0-18) 9	PE-4 (3-0-0) 3	PE-5 (3-0-0) 3				2	6	0	18	24	15
IV	CVD773 Major Project Part-II (CEC) (0-0-24) 12						0	0	0	24	24	12

Programme Code: **CEG** *Master of Technology in Geotechnical and Geoenvironmental Engineering* Department of Civil Engineering

The overall credits structure

Category	PC	PE	OE	Total
Credits	36	12	0	48

Program Core						Program Electives							
CVD800 Major Project Part-I	0	0	12	26	6	CVD700* Minor Project 0 0 6							
CVD801 Major Project Part-II	0	0	24	4 1	12	CVL704 Finite Element Method in Geotechnical Engg. 3 0 0							
CVL700 Engineering Behaviour of Soils	3	0	0	3	3	CVL705 Slopes and Retaining Structures 3 0 0							
CVL701 Site Investigation and Foundation Design	-	-	0		-	CVL706 Soil Dynamics and Earthquake 3 0 0 Geotechnical Engineering							
CVL702 Ground Improvement and Geosynthetics CVL703 Geoenvironmental Engineering			0 0			CVL707 Soil-Structure Interaction Analysis 3 0 0 CVL708 Geotechnology of Waste Disposal Facilities 3 0 0							
CVP700 Soil Engineering Lab			6			CVL708Geotechnology of Waste Disposal Facilities300CVL709Offshore Geotechnical Engineering300							
CVP800 Geoenvironmental and Geotechnical Engineering Lab	0	0	6	3	3	CVL800Emerging Topics in Geotechnical Engineering 300CVL801Constitutive Modelling in Geotechnics30							
Total Credits				3	86	CVS800 Independent Study 0 3 0							

* This course is only for Part-Time students in lieu of CVP800 and DAAD students.

6		Lecture courses		Contact	h/week	c	Credits				
Sem.		(Number, Abbrevia	ted Title, L-T-P, credits)			Lect	L	Т	Р	Total	Cre
I	CVL700 Engineering Behaviour of Soils (3-0-0) 3	CVL701 Site Investigation and Foundation Design (3-0-0) 3	CVP700 Soil Engineering Lab (0-0-6) 3	PE-1 (3-0-0) 3		3	9	0	6	15	12
П	CVL702 Ground Improvement and Geosynthetics (3-0-0) 3	CVL703 Geoenvironmental Engineering (3-0-0) 3	CVP800 Geoenvironmental and Geotechnical Engg. Lab/ CVD700 Minor Project (for Part Time Students) (0-0-6) 3	PE-2 (3-0-0) 3	PE-3 (3-0-0) 3	4	12	0	6	18	15
Summer								•			
III	CVD800 Major Project Part-I (0-0-12) 6	PE-4 (3-0-0) 3				1	3	0	12	15	9
IV	CVD801 Major Project Part-II (0-0-24) 12					0	0	0	24	24	12

Master of Technology in Transportation Engineering

Department of Civil Engineering

The overall credits structure

C	Category	PC	PE	ОС	Total
	Credits	36	18	0	54

Including 6 Credits of Restricted Electives

Program	Core						CVL744	Transportation Infrastructure Design	2	0	2	3
CVD853	Major Project Part-I	0	0	18	39)	CVL745	Modeling of Pavement Materials	2	0	2	3
CVD854	Major Project Part-II	0	0	24	11	2	CVL746	Public Transportation Systems	3	0	0	3
CVL740	Pavement Materials and Design of Pavements	3	0	2	4	ŀ	CVL747	Transportation Safety and Environment	3	0	0	3
CVL741	Urban and Regional Transportation Planning	3	0	2	4	ŀ	CVL749	Planning and Design of Bus Transportation	3	0	0	3
CVL742	Traffic Engineering	3	0	2	4	ŀ		System				
CVS852	Advanced Topics in Transportation Engineering	0	0	6	3	3	CVL750	Intelligent Transportation Systems	3	0	0	3
	Total Credits				36	6	CVL840	Planning and Design of Sustainable Transport Systems	3	0	0	3
Restricte	d Electives (6 Credits)						CVL841	Advanced Transportation Modelling	2	0	2	3
CVL763	Analytical & Numerical Methods in	3	0	0	3	2	CVL842	Geometric Design of Roads	2	0	2	3
011/00	Structural Engineering	0	0	0	0	,	CVL844	Transportation Infrastructure Management	3	0	0	3
CVL729	Environmental Statistics and	2	0	2	3	3	CVL845	Viscoelastic Behavior of Bituminous Materials	3	0	0	3
012.20	Experimental Design	-	Ũ	-	Ŭ	•	CVL846	Transportation System Management	3	0	0	3
MCL761	Probability and Statistics	3	0	0	3	3	CVL847	Transportation Economics	3	0	0	3
CVL731	Optimization Techniques in Water Resources	3	0	0	3	3	CVL848	Discrete Choice Methods for Travel Demand	2	0	2	3
CVL748	Data Analysis for Transportation Engineering	3	0	0	3	3		Analysis				
CVS753	Minor Project in Transportation Engineering	0	0	6	3	3	CVL849	Traffic Flow Modelling	3	0	0	3
_	, , , ,						CVL850	Transportation Logistics	3	0	0	3
Program	Electives						CVL851	Special Topics in Transportation Engineering	3	0	0	3
CVL743	Airport Planning and Design	3	0	0	3	3	CVS754	Independent Study	0	3	0	3

Sem.		Lecture courses	Contact h/week								
Sem	(N	Lec cou	L	Т	Р	Total	Credits				
I	CVL741 Urban & Regional Transport Planning (3-0-2) 4	CVL740 Pavement Materials and Design of Pavements (3-0-2) 4	CVL742 Traffic Engineering (3-0-2) 4	RE-1* (3-0-0 or 2-0-2) 3			Min. 11 Max. 12	0	Min. 6 Max. 8	18	15
II	PE-1 (2-0-2) 3	PE-2 (2-0-2) 3	PE-3 (2-0-2) 3	RE-2# (3-0-0 or 2-0-2) 3			Min. 8 Max. 9		Min. 6 Max. 8	12	12
Summer		Adva	inced Topics in T	VS852 Transportation En D-D-6) 3	ngineerin	9					3
III	PE-4 (2-0-2) 3	CVD853 Major Project Part-I (0-0-18) 9					0	0	6	6	12
IV	CVD854 Major Project Part-II (0-0-24) 12						3	0	18	24	12

* Should be listed in restricted elective course category.
 # Any course (relevant to research area) offered in that semester with consent of thesis supervisor. Alternatively minor project can be opted.

Master of Technology in Structural Engineering Department of Civil Engineering

The overall credits structure

Credits4212054rogram CoreVD757Major Project Part-I (CES)00189CVL769Design of Tall BuildingsVD758Major Project Part-I (CES)00189CVL770Prestressed and Composite StructuresVL756Advanced Structural Analysis3003CVL856Strucquenal AnalysicVL757Finite Element Methods in Structural2023CVL856Theory of Plates and ShellsVL757Finite Element Methods in Structural Engineering3003CVL860Advanced Finite Element Method andVL759Structural Dynamics3003CVL861Analysis and Design of Machine FoundationsVL760Theory of Steel Structures3003CVL862Design of Offshore StructuresVL761Theory of Steel Structures3003CVL862Design of Offshore StructuresVL761Theory of Steel Structures3003CVL863General Continuum MechanicsVL765Structural Engineering Laboratory0063CVL864Structural Hell MonitoringVD756Minor Project in Structural Engineering0063CVL771Advanced Concrete TechnologyVL763Analytical and Numerical Methods for Structural Engineering3003CVL865Structural Hell MonitoringVL766Design of	Cate	egory	PC	PE	OC			Т	otal				
VD757Major Project Part-I (CES)00189CVL770Prestressed and Composite StructuresVD758Major Project Part-II (CES)00189CVL856Strengthening and Retrofitting of StructuresVL756Advanced Structural Analysis3003CVL857Structural Safety and ReliabilityVL757Finite Element Methods in Structural2023CVL857Theory of Plates and ShellsVL758Solid Mechanics in Structural Engineering3003CVL859Theory of Structural StabilityVL760Theory of Concrete Structures3003CVL861Analysis and Design of Machine FoundationsVL762Earthquake Analysis and Design3003CVL864Analysis and Design of Offshore StructuresVL762Earthquake Analysis and Design3003CVL863General Continuum MechanicsVL763Analytical and Numerical Methods for Structural Engineering42CVL865Structural Vibration ControlVL764Blast Resistant Design of Structures3003CVL871VL765Concrete Mechanics3003CVL873VL766Design of Bridge Structures3003CVL874VL765Design of Bridge Structures3003CVL874VL766Design of Bridge Structures3003CVL874VL76	Cre	dits	42	12	0				54				
VD757Major Project Part-I (CES)00189CVL770Prestressed and Composite StructuresVD758Major Project Part-II (CES)00189CVL856Strengthening and Retrofitting of StructuresVL756Advanced Structural Analysis3003CVL857Structural Safety and ReliabilityVL757Finite Element Methods in Structural2023CVL857Theory of Plates and ShellsEngineering0003003CVL859Theory of Structural StabilityVL758Solid Mechanics in Structures3003CVL860Advanced Finite Element Method and ProgrammingVL759Structural Dynamics3003CVL861Analysis and Design of Machine FoundationsVL761Theory of Steel Structures3003CVL862Design of Offshore StructuresVL762Earthquake Analysis and Design3003CVL863General Continuum MechanicsVL765Structural Engineering Laboratory0063CVL864Structural Vibration ControlVD756Minor Project in Structural Engineering0063CVL876Independent Study (CES)VL764Blast Resistant Design of Structures3003CVL877Fire Engineering and DesignVL765Concrete Mechanics3003CVL877Fire Engineering and Design<													
ND758Major Project Part-II (CES)00189CVL856Strengthening and Retrofitting of StructuresVL756Advanced Structural Analysis3003CVL857Structural Safety and ReliabilityVL757Finite Element Methods in Structural2023CVL857Structural Safety and ReliabilityVL757Finite Element Methods in Structural Engineering3003CVL859Theory of Plates and ShellsVL758Solid Mechanics in Structural Engineering3003CVL859Theory of Structural StabilityVL760Theory of Concrete Structures3003CVL861Analysis and Design of Machine FoundationsVL761Theory of Steel Structures3003CVL862Design of Offshore StructuresVL762Earthquake Analysis and Design3003CVL863General Continuum MechanicsVL762Earthquake Analysis and Design3003CVL864Structural Health MonitoringVD756Minor Project in Structural Engineering0063CVL876Midependent Study (CES)VL763Analytical and Numerical Methods for Structural Engineering0063CVL877Fire Engineering and DesignVL764Blast Resistant Design of Structures2023CVL877Fire Engineering and DesignVL765Concrete Mechanics3003 </td <td>rogram</td> <td>n Core</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>CVL769</td> <td>Design of Tall Buildings</td> <td>3</td> <td></td>	rogram	n Core								CVL769	Design of Tall Buildings	3	
VL756Advanced Structural Analysis3003CVL857Structural Safety and ReliabilityVL757Finite Element Methods in Structural2023CVL857Theory of Plates and ShellsVL758Solid Mechanics in Structural Engineering3003CVL857Theory of Structural StabilityVL759Structural Dynamics3003CVL857Advanced Finite Element Method and ProgrammingVL759Structural Dynamics3003CVL861Analysis and Design of Machine FoundationsVL761Theory of Steel Structures3003CVL862Design of Offshore StructuresVL762Earthquake Analysis and Design3003CVL863General Continuum MechanicsVP756Structural Engineering Laboratory0063CVL865Structural Health MonitoringVD756Minor Project in Structural Engineering0063CVL771Advanced Concrete TechnologyVL763Analytical and Numerical Methods for Structural Engineering0063CVL771Fire Engineering and DesignVL764Blast Resistant Design of Structures2023CVL871Durability and Repair of Concrete StructuresVL767Design of Fiber Reinforced Composite3003CVL874Durability and Repair of Concrete StructuresVL767Design of Fiber Reinforced Composite3 <td>VD757</td> <td>Major P</td> <td>roject Part-I (CE</td> <td>S)</td> <td></td> <td>0</td> <td>0</td> <td>18 9</td> <td>9</td> <td>CVL770</td> <td>Prestressed and Composite Structures</td> <td>2</td> <td></td>	VD757	Major P	roject Part-I (CE	S)		0	0	18 9	9	CVL770	Prestressed and Composite Structures	2	
VL757Finite Element Methods in Structural Engineering2023CVL858Theory of Plates and Shells CVL859VL758Solid Mechanics in Structural Engineering VL7593003CVL859Theory of Structural StabilityVL759Structural Dynamics3003CVL860Advanced Finite Element Method and ProgrammingVL760Theory of Concrete Structures3003CVL861Analysis and Design of Machine FoundationsVL761Theory of Steel Structures3003CVL862Design of Offshore StructuresVL762Earthquake Analysis and Design3003CVL863General Continuum MechanicsVP756Structural Engineering Laboratory0063CVL864Structural Vibration ControlrogramElectives-42CVL865Structural Vibration ControlCVL866Wind Resistant Design of StructuresVD756Minor Project in Structural Engineering Structural Engineering0063CVL771Advanced Concrete TechnologyVL763Analytical and Numerical Methods for Structural Engineering3003CVL873Fire Engineering and DesignVL764Blast Resistant Design of Structures3003CVL871Durability and Repair of Concrete StructuresVL765Design of Bridge Structures3003CVL868Waves through Periodic Structures	VD758	Major P	roject Part-II (CE	EŚ)		0	0	18 9	9	CVL856	Strengthening and Retrofitting of Structures	3	
EngineeringCVL859Theory of Structural StabilityVL758Solid Mechanics in Structural Engineering3003VL759Structural Dynamics3003VL760Theory of Concrete Structures3003VL761Theory of Steel Structures3003VL762Earthquake Analysis and Design3003VL762Earthquake Analysis and Design3003VP756Structural Engineering Laboratory0063VD756Minor Project in Structural Engineering0063VL763Analytical and Numerical Methods for Structural Engineering0063VL764Blast Resistant Design of Structures2023CVL871VL765Concrete Mechanics3003CVL779VL766Design of Bridge Structures3003CVL873VL767Design of Fiber Reinforced Composite3003CVL868VL767Design of Fiber Reinforced Composite3003CVL867VL767Design of Fiber Reinforced Composite3003CVL867VL767Design of Fiber Reinforced Composite3003CVL867VL767Design of Fiber Reinforced Composite3003CVL867VL767Design of Fiber Re	VL756	Advanc	ed Structural An	alysis	:	3	0	0 3	3	CVL857	Structural Safety and Reliability	3	
VL758Solid Mechanics in Structural Engineering Structural Dynamics3003CVL860Advanced Finite Element Method and ProgrammingVL759Structural Dynamics3003CVL861Analysis and Design of Machine FoundationsVL760Theory of Steel Structures3003CVL861Analysis and Design of Machine FoundationsVL761Theory of Steel Structures3003CVL862Design of Offshore StructuresVL762Earthquake Analysis and Design3003CVL863General Continuum MechanicsVP756Structural Engineering Laboratory0063CVL864Structural Health MonitoringTogramElectives42CVL865Structural Vibration ControlCVL866Wind Resistant Design of StructuresVD756Minor Project in Structural Engineering0063CVL771Advanced Concrete TechnologyVL763Analytical and Numerical Methods for Structural Engineering3003CVL771Advanced Concrete StructuresVL764Blast Resistant Design of Structures3003CVL871Durability and Repair of Concrete StructuresVL766Design of Bridge Structures3003CVL868Waves through Periodic StructuresVL767Design of Fiber Reinforced Composite Structures3003CVL867Atomistic & Multiscale Modelling of Materials <td>VL757</td> <td>Finite E</td> <td>lement Methods</td> <td>in Structural</td> <td>:</td> <td>2</td> <td>0</td> <td>2 3</td> <td>3</td> <td>CVL858</td> <td>Theory of Plates and Shells</td> <td>3</td> <td></td>	VL757	Finite E	lement Methods	in Structural	:	2	0	2 3	3	CVL858	Theory of Plates and Shells	3	
VL759Structural Dynamics3003ProgrammingVL760Theory of Concrete Structures3003CVL861Analysis and Design of Machine FoundationsVL761Theory of Steel Structures3003CVL862Design of Offshore StructuresVL762Earthquake Analysis and Design3003CVL862Design of Offshore StructuresVL762Earthquake Analysis and Design30063CVL863General Continuum MechanicsVP756Structural Engineering Laboratory0063CVL865Structural Health MonitoringrogramElectives42CVL865Structural Vibration ControlCVL866Wind Resistant Design of StructuresVD756Minor Project in Structural Engineering0063CVL771Advanced Concrete TechnologyVL763Analytical and Numerical Methods for Structural Engineering3003CVL771Advanced Concrete TechnologyVL764Blast Resistant Design of Structures2023CVL871Durability and Repair of Concrete StructuresVL765Design of Bridge Structures3003CVL868Waves through Periodic StructuresVL767Design of Fiber Reinforced Composite Structures3003CVL867Atomistic & Multiscale Modelling of Materials		•	•							CVL859	Theory of Structural Stability	3	
VL760Theory of Concrete Structures3003CVL861Analysis and Design of Machine FoundationsVL761Theory of Steel Structures3003CVL861Analysis and Design of Machine FoundationsVL762Earthquake Analysis and Design3003CVL863General Continuum MechanicsVP756Structural Engineering Laboratory0063CVL864Structural Health Monitoringrogram Electives42CVL865Structural Vibration ControlCVL866Wind Resistant Design of StructuresVD756Minor Project in Structural Engineering0063CVL771Advanced Concrete TechnologyVL763Analytical and Numerical Methods for Structural Engineering3003CVL771Advanced Concrete TechnologyVL764Blast Resistant Design of Structures2023CVL873Fire Engineering and DesignVL764Design of Bridge Structures3003CVL871Durability and Repair of Concrete StructuresVL766Design of Fiber Reinforced Composite3003CVL868Waves through Periodic StructuresVL767Design of Fiber Reinforced Composite3003CVL867Atomistic & Multiscale Modelling of Materials				ctural Enginee						CVL860	Advanced Finite Element Method and	2	
VL761Theory of Steel Structures3003CVL862Design of Offshore StructuresVL762Earthquake Analysis and Design3003CVL862Design of Offshore StructuresVP756Structural Engineering Laboratory0063CVL863General Continuum MechanicsTotal Credits42CVL865Structural Health MonitoringCVL865Structural Health MonitoringCVL865Structural Health MonitoringCVL865Structural Vibration ControlCVL866Wind Resistant Design of StructuresCVL865Structural Vibration ControlCVL866Wind Resistant Design of StructuresVD756Minor Project in Structural Engineering0063VL763Analytical and Numerical Methods for Structural Engineering3003VL764Blast Resistant Design of Structures2023CVL871Advanced Concrete Technology CVL873VL764Design of Bridge Structures3003CVL871Durability and Repair of Concrete Structures and metamaterialsVL767Design of Fiber Reinforced Composite Structures30303VL767Design of Fiber Reinforced Composite Structures303CVL867Atomistic & Multiscale Modelling of Materials									-		Programming		
VL762Earthquake Analysis and Design Structural Engineering Laboratory3003CVL802Design of Onside StructuresVP756Structural Engineering Laboratory Total Credits30063CVL863General Continuum Mechanicsrogram Electives42CVL864Structural Health Monitoring CVL865Structural Health MonitoringVD756Minor Project in Structural Engineering VL763006303CVL864Structural Vibration Control CVL865VD756Minor Project in Structural Engineering Structural Engineering00633003VL764Blast Resistant Design of Structures VL765202303CVL779Formwork for Concrete StructuresVL766Design of Bridge Structures VL7673003CVL868Waves through Periodic Structures and metamaterialsVL767Design of Fiber Reinforced Composite Structures3003CVL867Atomistic & Multiscale Modelling of Materials										CVL861	Analysis and Design of Machine Foundations	2	
VP756Structural Engineering Laboratory Total Credits0063CVL803General Continuum Mechanicsrogram Electives42CVL864Structural Health Monitoring CVL865Structural Vibration Control CVL866VD756Minor Project in Structural Engineering Structural Engineering0063CVL864Structural Health Monitoring CVL865VD756Minor Project in Structural Engineering Structural Engineering00633CVL865Structural Vibration Control CVL866VL764Blast Resistant Design of Structures VL7652023CVL771Advanced Concrete Technology CVL873Fire Engineering and DesignVL764Blast Resistant Design of Structures VL76630303CVL779Formwork for Concrete StructuresVL766Design of Bridge Structures Structures30303CVL868Waves through Periodic Structures and metamaterialsVL767Design of Fiber Reinforced Composite Structures303CVL867Atomistic & Multiscale Modelling of Materials		,								CVL862	Design of Offshore Structures	3	
Total Credits42CVL864Structural Health Molified Hea										CVL863	General Continuum Mechanics	3	
VD756 Minor Project in Structural Engineering0063VL763 Analytical and Numerical Methods for Structural Engineering0063VL764 Blast Resistant Design of Structures2023VL765 Concrete Mechanics303CVL871Advanced Concrete Technology CVL873VL766 Design of Bridge Structures303CVL871VL767 Design of Fiber Reinforced Composite Structures303CVL871VL767 Design of Fiber Reinforced Composite Structures303CVL868VL767 Mathematical Methods for Structures303CVL771Advanced Concrete Technology CVL873CVL873Fire Engineering and DesignVL766 Design of Bridge Structures Structures303CVL868VL767 Design of Fiber Reinforced Composite Structures303CVL867CVL867 Atomistic & Multiscale Modelling of MaterialsCVL867Atomistic & Multiscale Modelling of Materials	VP756	Structur	rai Engineering L	aboratory		0	0	6 3	3	CVL864	Structural Health Monitoring	2	
VD756Minor Project in Structural Engineering0063VL763Analytical and Numerical Methods for Structural Engineering3003VL764Blast Resistant Design of Structures2023VL765Concrete Mechanics3003VL766Design of Bridge Structures3003VL767Design of Fiber Reinforced Composite Structures3003VL767Design of Fiber Reinforced Composite Structures3003VL767Design of Fiber Reinforced Composite Structures3030VL767Design of Fiber Reinforced Composite Structures30303		Total C	redits					4	12	CVL865	Structural Vibration Control	3	
VD756Minor Project in Structural Engineering0063CVS756Independent Study (CES)VL763Analytical and Numerical Methods for Structural Engineering3003CVL771Advanced Concrete TechnologyVL764Blast Resistant Design of Structures2023CVL779Formwork for Concrete StructuresVL765Concrete Mechanics3003CVL871Durability and Repair of Concrete StructuresVL766Design of Bridge Structures3003CVL871Durability and Repair of Concrete StructuresVL767Design of Fiber Reinforced Composite Structures3003CVL868Waves through Periodic Structures and metamaterialsCVL867Atomistic & Multiscale Modelling of MaterialsCVL867Atomistic & Multiscale Modelling of Materials	rogram	Elective	20							CVL866	Wind Resistant Design of Structures	3	
VL763Analytical and Numerical Methods for Structural Engineering3003CVL7/1Advanced Concrete Technology CVL873VL764Blast Resistant Design of Structures2023CVL779Fire Engineering and DesignVL765Concrete Mechanics3003CVL871Durability and Repair of Concrete StructuresVL766Design of Bridge Structures3003CVL871Durability and Repair of Concrete StructuresVL767Design of Fiber Reinforced Composite3003CVL868Waves through Periodic Structures and metamaterialsVL767Design of Fiber Reinforced Composite3003CVL867Atomistic & Multiscale Modelling of Materials					~	0	0	6 1	2	CVS756	Independent Study (CES)	0	
Structural EngineeringCVL873Fire Engineering and DesignVL764Blast Resistant Design of Structures2023VL765Concrete Mechanics303CVL871Durability and Repair of Concrete StructuresVL766Design of Bridge Structures303CVL873Fire Engineering and DesignVL766Design of Bridge Structures303CVL871Durability and Repair of Concrete StructuresVL767Design of Fiber Reinforced Composite303CVL868Waves through Periodic Structures and metamaterialsVL767StructuresCVL867Atomistic & Multiscale Modelling of Materials									-	CVL771	Advanced Concrete Technology	3	
VL764Blast Resistant Design of Structures2023CVL779Formwork for Concrete StructuresVL765Concrete Mechanics303CVL871Durability and Repair of Concrete StructuresVL766Design of Bridge Structures303CVL871Durability and Repair of Concrete StructuresVL767Design of Fiber Reinforced Composite303CVL868Waves through Periodic StructuresStructuresStructuresCVL867Atomistic & Multiscale Modelling of Materials	VL/03					5	0	0.	5	CVL873	Fire Engineering and Design	3	
VL765Concrete Mechanics3003CVL871Durability and Repair of Concrete StructuresVL766Design of Bridge Structures303CVL868Waves through Periodic StructuresVL767Design of Fiber Reinforced Composite303CVL868Waves through Periodic StructuresStructuresStructuresCVL867Atomistic & Multiscale Modelling of Materials	VI 764		0 0	of Structures		2	0	2 3	3	CVL779	Formwork for Concrete Structures	3	
VL766 Design of Bridge Structures 3 0 0 3 CVL868 Waves through Periodic Structures and metamaterials VL767 Design of Fiber Reinforced Composite Structures 3 0 0 3 CVL868 Waves through Periodic Structures and metamaterials Structures CVL867 Atomistic & Multiscale Modelling of Materials									•	CVL871	Durability and Repair of Concrete Structures	3	
VL767 Design of Fiber Reinforced Composite 3 0 3 and metamaterials Structures CVL867 Atomistic & Multiscale Modelling of Materials				ures					-	CVL868	Waves through Periodic Structures	3	
Structures CVL867 Atomistic & Multiscale Modelling of Materials	VL767	•	•		e :			0 3	3	and metamaterials			
VI 768 Design of Masonry Structures 3 0 0 3 CVI 869 Probabilistic Structural Dynamics				•						CVL867	Atomistic & Multiscale Modelling of Materials	3	
	VL768	Design	of Masonry Stru	ctures	:	3	0	0 3	3	CVL869	Probabilistic Structural Dynamics	3	

Sem.			Lecture courses		Contact	h/week		Credits			
Sem.		(Number, Abb	previated Title, L-	T-P, credits)		Lect	L	т	Р	Total	Cre
I	CVL756 Advanced Structural Analysis (3-0-0) 3	CVL759 Structural Dynamics (3-0-0) 3	CVL757 Finite Element Methods in Structural Engineering (2-0-2) 3	CVL758 Solid Mechanics in Structural Engineering (3-0-0) 3	PE-1 (3·0·0) 3 or (2·0·2) 3	5	(13, 14)	0	(2,4)	(16, 17)	15
п	CVP756 Structural Engineering Laboratory (0-0-6) 3	CVL762 Earthquake Analysis and Design (3-0-0) 3	CVL760 Theory of Concrete Structures (3-0-0) 3	CVL761 Theory of Steel Structures (3-0-0) 3	PE-2 (3-0-0) 3 or (2-0-2) 3	4	(11, 12)	0	(6,8)	(18, 19)	15
Summer					· · · · · ·						
ш	CVD757 Major Project Part-I (CES) (0-0-18) 9	PE-3 (3-0-0) 3 or (2-0-2) 3	PE-4 (3-0-0) 3 or (2-0-2) 3			2	(4,6)	0	(18, 22)	(24, 26)	15
IV	CVD758 Major Project Part-I (CES) (0-0-18) 9					0	0	0	18	18	9

Programme Code: CET Master of Technology in Construction Engineering and Management Department of Civil Engineering

The overall credits structure

Category	PC	PE	OC	Total
Credits	42	12	0	54

Program	Program Core					Program Electives								
CVD777	Major Project Part-I (CET)	0	0	18	89		CVD776	Minor Project (CET)	0	0	6	3		
CVD778	Major Project Part-II (CET)	0	0	24	4 12	2	CVL765	Concrete Mechanics	3	0	0	3		
CVL771	Advanced Concrete Technology	3	0	0	3		CVL777	Building Science	3	0	0	3		
CVL772	Construction Project Management	3	0	0	3		CVL778	Building Services and Maintenance Management	3	0	0	3		
CVL773	Quantitative Methods in Construction Management	3	0	0	3		CVL779	Formwork for Concrete Structures	3	0	-	-		
CVL774	Construction Contract Management	3	0	0	3		CVL871	Durability and Repair of Concrete Structures						
CVL775	Construction Economics and Finance	3	0	0	3		CVL872	Infrastructure Development and Management	3	0	0	3		
CVL776	Construction Practices and Equipment	3	0	0	3		CVL873	Fire Engineering and Design	3	0	0	3		
CVP771	Construction Technology Laboratory	0	0	3	1.	.5	CVL874	Quality and Safety in Construction	3	0	0	3		
CVP772	Computational Laboratory for Construction	0	0	3	1.	.5	CVL875	Sustainable Materials and Green Buildings	3	0	0	3		
	Management						CVL876	Digital Design and Construction	2	0	2	3		
	Total Credits				4	2	CVS776	Independent Study (CET)	0	3	0	3		

Sem.		Lecture courses	0	Contact h/week							
Jem.		(Number, Abbre		Lec	L	Т	Р	Total	Credits		
I	CVL772 Construction Project Management (3-0-0) 3	CVL773 Quantitative Methods in Construction Management (3-0-0) 3	CVL771 Advanced Concrete Technology (3-0-0) 3	CVP772 Computational Laboratory for Construction Management (0-0-3) 1.5	PE-1 (3-0-0) 3	4	12	0	3	15	13.5
II	CVL775 Construction Economics and Finance (3-0-0) 3	CVL776 Construction Practices and Equipment (3-0-0) 3	CVL774 Construction Contract Management (3-0-0) 3	CVP771 Construction Technology Laboratory (0-0-3) 1.5	PE-2 (3-0-0) 3	4	12	0	3	15	13.5
Summer											
III	CVD777 Major Project Part-I (CET) (0-0-18) 9	PE-3 (3-0-0) 3	PE-4 (3-0-0) 3			2	6	0	18	24	15
IV	CVD778 Major Project Part-II (CET) (0-0-24) 12					0	0	0	24	24	12

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Programme Code: **CEU** *Master of Technology in Rock Engineering and Underground Structures* Department of Civil Engineering

The overall credits structure

Category	PC	PE	OC	Total
Credits	36	12	0	48

Program	Core					Program	Electives				
CVD810	Major Project Part-I	0	0	12	26	CVD710*	Minor Project	0	0	6	3
CVD811	Major Project Part-II	0	0	24	112	CVL704	Finite Element Method in Geotechnical Engg	. 3	0	0	3
CVL710	Engineering Properties of Rocks and Rock	3	٥	0	3	CVL714	Field Exploration and Geotechnical Processes	3	0	0	3
012/10	Masses	-	-	-	-	CVL715	Excavation Methods and Underground Space Technology	3	0	0	3
CVL711	Structural Geology	3	0	0	3	CVL716	1 8,	З	0	Λ	3
CVL712	Slopes and Foundations	3	0	0	3	CVL810	Emerging Topics in Rock Engineering and	•	Ő	•	•
CVL713	Analysis and Design of Underground	3	0	0	3	012010	Underground Structures	Ũ	Ũ	Ũ	Ŭ
	Structures					CVL811	Numerical and Computer Methods	3	0	0	3
CVP710	Rock Mechanics Laboratory-I	0	0	6	3		in Geomechanics				
CVP810	Rock Mechanics Laboratory-II	0	0	6	3	CVS810	Independent Study	0	0	6	3
	Total Credits				36	* This cou	rse is only for Part-Time students in lieu of CVP800 and	d DA	AD :	stuc	lent

		Col	urses			ure ses	C	Contact	h/we	ek	lits
Sem.		(Number, Abbreviate		edits)		Lecture courses	L	т	Р	Total	Credits
I	CVL710 Engineering Properties of Rocks and Rock Masses (3-0-0) 3	CVL711 Structural Geology (3-0-0) 3	CVP710 Rock Mechanics Laboratory-I (0-0-6) 3	PE-1 (3-0-0) 3		3	9	0	6	15	12
Ш	CVL712 Slopes and Foundations (3-0-0) 3	CVL713 Analysis and Design of Underground Structures (3-0-0) 3	CVP810 Rock Mechanics Laboratory-II / CVD710 Minor Project (0-0-6) 3	PE-2 (3-0-0) 3	PE-3 (3-0-0) 3	4	12	0	6	18	15
Summer											
III	CVD810 Major Project Part-I (0-0-12) 6	PE-4 (3-0-0) 3				1	3	0	12	15	9
IV	CVD811 Major Project Part-II (0-0-24) 12					0	0	0	24	24	12

Programme Code: CEV Master of Technology in Environmental Engineering and Management

Department of Civil Engineering

The overall credits structure

Cate	egory	PC	PE	ОС		Total				
Cre	dits	39	9	6		54				
Program	n Core						CVL821	Industrial Waste Management and Aud	it	it 3
CVD720 CVD721	Major Th	nesis Part-I nesis Part-II		0	0	126 2412	CVL822	5		
VD726	,			0	õ	6 3	CVL823	Thermal Techniques for Waste Managem	ient	nent 3
CVL720		ition and Control	I	3	0	0 3	CVL824	Life Cycle Analysis and Design		3
CVL721	Solid Wa	aste Engineering	a	3	0	03		for Environment		
CVL722	Water E	ngineering	-	3	0	03	CVL825	Fundamental of Aerosol: Health and		3
CVL723	Wastew	ater Engineering	9	3	0	03		Climate Change		
CVL724	Environ	mental Systems	Analysis	3	0	03	CVL826	Quantitative Microbial Risk Assessment		1
CVL725	Environ	mental Chemistr	y and Microbiolog	iy 1	0	4 3	CVL827	Environmental Implications of Engineered	i –	1 2
	Total Ci	redits				39		Nanomaterials		
Dreamon		_					CVL828	Water Distribution and Sewerage		3
	n Elective						0) // 000	Network Design		•
CVL727		mental risk asse		-	0		CVL829	Indoor Environmental Quality: Theory		2
CVL728		mental Quality M	•	3	-	03		and Practice		
CVL729		mental Statistics	and	2	0	23	CVP820	· · · · · · · · · · · · · · · · · · ·		1
	•	ental Design					CVP821		ory	,
CVL820	Environ	mental Impact As	ssessment	3	0	03	CVS720	Independent Study		0

Gam		Cours	ies			Lecture courses		Contact	h/week	[Credits
Sem.	(Nu	mber, Abbreviated	Title, L-T-P, Cre	dits)		Lect	L	Т	Р	Total	Cree
I	CVL725 Environmental Chemistry and Microbiology (1-0-4) 3	CVL722 Water Engineering (3-0-0) 3	CVL720 Air pollution and control (3-0-0) 3	PE-1 (3-0-0) 3 or (2-0-2) 3 or (1-0-4)		4	(8, 10)	0	(4,8)	(14, 16)	12
Ш	CVL721 Solid Waste Engineering (3-0-0) 3	CVL724 Environmental Systems Analysis (3-0-0) 3	CVL723 Wastewater Engineering (3-0-0) 3	PE-2 (3-0-0) 3 or (2-0-2) 3 or (1-0-4)	OE-1 (3-0-0) 3	5	(13, 15)	0	(0,4)	(15, 17)	15
Summer	CVD726 Minor project	ot (0-0-6) 3	·			•					3
III	CVD720 Major Thesis Part-I (0-0-12) 6			PE-3 (3-0-0) 3 or (2-0-2) 3 or (1-0-4)	OE-2 (3-0-0) 3	2	(4,6)	0	(12, 16)	(18, 20)	12
IV	CVD721 Major Thesis Part-II (0-0-24) 12					0	0	0	24	24	12

Total = 54

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Master of Technology in Water Resources Engineering Department of Civil Engineering

The overall credits structure

Category	PL	PE	OC	Total
Credits	39	15	0	54

Program Core						CVL737	Environmental Dynamics and Management	3	0	0	3
CVD831 Major Project Part-I	0	0	12	26	3	CVL738	Economic Aspects of Water Resources				
CVD832 Major Project Part-II	0	0	24	41	2		Development	3	0	0	3
CVL730 Hydrologic Processes and Modeling	3	0	0	3	3	CVL830	Groundwater Flow and Pollution Modeling	3	0	0	3
CVL731 Optimization Techniques in Water Resources	3	0	0	3	3	CVL831	Surface Water Quality Modeling and Control	3	0	0	3
CVL732 Groundwater Hydrology		0	0	3	3	CVL832	Hydroelectric Engineering	3	0	0	3
CVL733 Stochastic Hydrology	2	0	2	3	3	CVL833	Water Resources Systems	3	0	0	3
CVL734 Advanced Hydraulics	3	0	0	3	3	CVL834	Urban Water Infrastructure	3	0	0	3
CVL735 Finite Element in Water Resources	3	0	0	3	3	CVL835	Eco-hydraulics and Hydrology	3	0	0	3
CVP730 Simulation Laboratory-I	0	0	3	1	.5	CVL836	Advanced Hydrologic Land Surface Processes	3	0	0	3
CVP731 Simulation Laboratory-II	0	0	3	1	1.5	CVL837	Mechanics of Sediment Transport	2	0	2	3
Total Credits				3	39	CVL838	Geographic Information Systems	2	0	2	3
				Ŭ		CVL839	Hydrologic Applications of Remote Sensing	2	0	2	3
Program Electives						CVS730	Minor Project	0	0	6	3
CVL736 Soft Computing Techniques in Water Resources	2	0	2	3	3	CVS830	Independent Study	0	3	0	3

Sem.				ourses			Lecture courses		Contact	h/week		Credits
		(Numl	per, Abbreviat	ed Title, L-T-F	P, Credits)		S F	L	Т	Р	Total	ů,
I	CVL730 Hyd. Process (3-0-0) 3	CVL731 Opt. Tech. (3-0-0) 3	CVL732 GW Hyd. (3-0-0) 3	CVL735 Stochastic Hyd. (2-0-2) 3	PE-1 (3-0-0) 3 or (2-0-2) 3		5	14/13	0	2/4	16/17	15
Ш	CVL733 Adv. Hydraulics (3-0-0) 3	CVL734 Finite Element (3-0-0) 3	CVP730 Sim. Lab-I (0-0-3) 1.5	CVP731 Sim. Lab-II (0-0-3) 1.5	PE-2 (3-0-0) 3 or (2-0-2) 3	PE-3 (3-0-0) 3 or (2-0-2) 3	4	12-10	0	6-10	18-20	15
Summer	Major Projec	t Part I (CEV	V)									0
ш	CVD831 Major Project (0-0-12) 6	Part-I		PE-4 (3-0-0) 3 or (2-0-2) 3	PE-5 (3-0-0) 3 or (2-0-2) 3		2	6-4	0	12-16	18-20	12
IV	CVD832 Major Project (0-0-24) 12	Part-II					0	0	0	24	24	12

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Master of Technology in Computer Science and Engineering

Department of Computer Science and Engineering

Category	PC	PE					OC		Total					
Credits	21	27-33 Ma	xin	nun	n o	of 4 C	r. in lieu o	f a PE (track B)	48-54					
Program Core							COL860	Special Topics in Pa	rallel Computatio	n	3	0	0	3
COD891 Minor	Proiect		0	0	6	3		Special Topics in So			3	0	0	3
	ch. Project Part-I			0				Special Topics in Hig		'ks	3	0	0	3
	nced Data Structure			0				Special Topics in Co						3
	& Functional Progr			0				Special Topics in Pro						3
COP701 Softw	are Systems Labor	atory	0	0	6	3	COL874	Special Topics in Co	mpilers and Lang	guage	3	0	0	3
Total	l Credits					21		Implementation Special Topics in For	mal Methods		3	0	0	3
Distance of the								Special Topics in Op						3
		his may be waived i RC. Please note that						Special Module in Pa			1			1
		54 credit requirement						Special Module in So	•		1		0	
		e credits should be c						Special Module in Hi			1	0	0	1
		ove the 48-54 credit					COV889	Special Module in Co	oncurrency		1			1
COL632 Introd	luction to Data Base	e Svstems	3	0	2	4	SIL765	Networks & System						4
		n Computer Systems					SIL769	Internet Traffic - Mea	surement, Mode	ling &	3	0	2	4
COL671 Artific			3	0	2	4		Analysis						
COL672 Comp	outer Networks		3	0	2	4		etical Computer Sci	ence (TH)					
Program Electi								Logic for CS (LCS)			3	0		4
	. ,		0	0	00			Numerical Algorithm				0		4
COD893 Major	essor Design Lab			0		3 14		Rapid Mixing in Mark				0	0	
COS799 Indep	0		0		0			Computational Social Foundations of Autor			3 3	0 0		3 4
	-							Algorithmic Graph TI		1	3	0	0	
		t 6 credits from PE;	Pr	oje	ct v	Nork		Geometric Algorithm			3	0		4
relevant to spec								Complexity Theory	•		3	0	0	
	e & Embedded Sys	. ,						Approximation Algor	ithms		3	0	0	3
	•	ormance Computers			2		COL755	Algorithmic Game Th	neory		3	0	0	
	nesis of Digital Syste	ems		0				Mathematical Progra				0		3
COL720 Real				0 0				Model Centric Algori	•		3	0		4
	edded Computing em Level Design and	d Modelling		0				Advanced Algorithms			3			4
	iples of Multiproces			0				Cryptography & Con Online Algorithms a		\nalveic				
	nfigurable Computir			0				Distributed Computir		11019515				3
	ial Topics in Hardwa			0				Semantics of Progra	•	es	3	0		3
COP745 Digita	al System Design La	aboratory	0	0	6	3		Proofs and Types			3			3
	essor Design Lab		0		8		COL860	Special Topics in Par	rallel Computatio	n	3	0	0	3
COV881 Speci	ial Module in Hardw	are Systems	1	0	0	1		Special Topics in Theo		Science	3	0	0	3
2. Graphics &	Vision (GV)							Special Topics in Alg						3
COL726 Nume	erical Algorithms		3	0	2	4		Special Topics in Co						3
COL780 Comp	outer Vision		-	0	_	-		Special Topics in Pro	0 0 0	uages		0		3
COL781 Comp						4.5		Special Topics in Cry Special Topics in Co		311200				3 3
	al Image Analysis	I't -				4.5	COL074	Implementation		Juaye	5	0	0	5
	al and Augmented R			0			COI 876	Special Topics in For	mal Methods		3	0	0	3
	nced Computer Visi nced Computer Gra			0 0				Special Module in Fi		ns				2
	ial Module on Visua	•		0				Special Module in The			1			
	ial Topics in Multime	1 0		õ			COV886	Special Module in Al	gorithms		1	0	0	1
•	•	, ,					COV889	Special Module in Co	oncurrency		1	0	0	1
3. Software Sy COL720 Real	• •		3	0	2	4	5. Data	Analytics & AI (DAAI)					
	nced Computer Net	works		0				Numerical Algorithm	•		3	0	2	4
COL728 Comp	•					4.5		Advanced Data Man				0		4
	piler Optimization					4.5	COL761	Data Mining						4
	lel Programming		3	0	2	4		Database Implement						4
	nced Compiler Tech	•	3	0	2	4		Information Retrieva		;h		0		4
	nization, Safety and			~	~			Advanced Artificial Ir	0			0		4
	alization and Cloud			0				Natural Language Pi	rocessing					4
		ology Fundamentals						Machine Learning				0		4
	are Engineering dations of Automation	Verification		0 0				Deep Learning	c Graphical Mad	اماد		0		4 4
COL768 Wirele				0				Learning Probabilisti Deep Reinforcement		615		0		4
	iples of Multiproces	sor Systems		0				Principles of Autonor	-					4
	nced Distributed Sy			0				Advanced Functiona						4
	ial Topics in Operati			0				Special Topics in Arti		•				3
•	ial Topics in Compile			0				Special Topics in Da	-					3
	•							•	-					

COL873	Special Topics in Machine Learning Special Topics in Natural Language Processing	3	0 0	0	3 3	COV888 SIL761	Introduction to Information and Communication	1 3	0 0	0 2	-
	Special Module in Machine Learning		•	0	1		Technologies for Development		_	_	
	Special Module in Artificial Intelligence	•	0	0	1	SIL763	Introduction to Blockchains	3	0	2	4
COV888	Special Module in Database Systems	1	0	0	1	SIL769	Internet Traffic - Measurement, Modeling &	3	0	2	4
6 Applic	ations & IT (ITA)						Analysis				
COL707	Introduction to Ethical Issues in Computer	З	0	2	4	SIL801	Special Topics in Multimedia	3	0	0	3
OOLIUI	Science	0	U	~	-	SIL802	Special Topics in Web Based Computing	3	0	0	3
COL722	Introduction to Compressed Sensing	3	0	0	3	SIL861	Special Topics in Information & Communication	3	0	0	3
	Model Centric Algorithm Design	•	•	-	4		Technologies for Development				
	Advanced Data Management	-	-	-	4	SIV813	Applications of Computer in Medicines	1	0	0	1
COL761	Data Mining	•	•	2	4	SIV861	Information and Communication	1	0	0	1
	Database Implementation	3	-	_	4		Technologies for Development				
COL764	Information Retrieval and Web Search	3	0	2	4	SIV864	Special Module on Media Processing	1	0	0	1
COL770	Advanced Artificial Intelligence	3	0	2	4		Communication				
	Advanced Functional Brain Imaging	3	0	2	4	SIV871	Special Module in Computational Neuroscience	1	0	0	1
	Special Topics in Computer Applications	3	0	0	3	SIV895	Special Module on Intelligent Information	1	0	0	1
	Special Module in Computer Applications	1	0	0	1		Processing				
	I been ble erer e						e e e e e e e e e e e e e e e e e e e				

Sem.			Courses			Lecture courses		Conta	ct h/weel	ĸ	Credits
		(Number, Abbi	reviated Title, L-T-P, cr	edits)		Lec cou	L	т	Р	Total	Ç
I	COL702 Advanced Data Structures (3-0-2) 4	Bridge Course-1 (3-4)	COL765 Logic and Functional Programming (3-0-2) 4	COP701 Software Lab (0-0-6) 3		2-3	6-9	0	10-12	16-21	11-15
II	PE-1 (3-4)	Bridge Course-2 (3-4)	COD891 Minor Project (0-0-6) 3	PE-2 (3-4)		2-3	6-9	0	10-12	16-21	9-15
	(Requ	uires a CGPA of atle	east 7.25 after completing	Track A at least 20 credits	of course v	vork, eligit	ole for sp	ecializat	ions)		
III	PE-3 (3-4)	PE-4 (3-4)	COD892 M.Tech. Project Part-I (0-0-14) 7			2	6	0	14-18	20-24	13-15
IV	1	M.Tech. Project Part	DD893 -II (MTP-II) (0-0-28) 14 in the summer			0	0	0	28	28	14
	(Stud	ent needs an appro	val from a commitee to e	Track B nter this track if CG	PA>= 7.25	, not eligit	ole for sp	ecializat	ions)		
III	PE-3 (3-4)	PE-4 (3-4)	PE-5/OC (3-4)			3	9	0	0-6	9-15	9-12
IV	PE-6 (3-4)	PE-7 (3-4)	COD892 M.Tech. Project Part-I (0-0-14) 7			2	6	0	14-18	20-24	13-15

Total = 48-54

Master of Technology in Control and Automation

Department of Electrical Engineering

Categ	gory	PC	PE	OE		Tot	al 🛛				
Cred	lits	24	18	6		48					
ELL700 ELL701	Major Pr Linear S Mathem	oject Part-I ystems Theory atical Methods i ar Systems	n Control	0 3 3 3	0 0	126 03 03 03	MCL783 ELL784 ELL787 ELL789 ELL791	Automation Manufacturing Introduction to Machine Learning Embedded Systems and Applications Intelligent Systems Neural Systems and Learning Machines	3 3 3 3 3	0 0 0 0	
LL703 LL705 LP800 LP801	Optimal Stochas Control S	Control Theory tic Filtering and Systems Labora ed Control Labor	itory	3 3 0 0	0 0 0	0 3 0 3 2 1 4 2 24	ELL793 ELL795 ELL796 ELL800	Computer Vision Swarm Intelligence Signals and Systems in Biology Numerical Linear Algebra and Optimization in Engineering	3 3 3 3	0 0 0 0	
	Minor Pr	s oject (EEA) oject Part-II		0		6 3 24 12	ELL801 ELL802 ELL803	Nonlinear Control Adaptive and Learning Control Model Reduction in Control	3 3 3	0 0	
LL704 1TL704 LL707	Advance Numeric Systems	ed Robotics al Optimization Biology		3 3 3	0 0 0	03 03 03	ELL804 ELL805 ELL806	Robust Control Networked and Multi-Agent Control Systems Modeling and Control of Distributed Parameter Systems	3 3 3	0 0 0	
LL709 SL711 LL714	Design A Sensors Basic Inf	I Topics in Syste Aspects in Contr & Tranducers formation Theor ed Digital Signal	у	3 3 3 3 3	0 0 0		ELL807 ELL808 MCL845 ELL850	Stochastic Control Advanced Topics in Systems and Control Advanced Robotics Digital Control of Power Electronics and	3 3 2 3	0 0	
1TL731 LL762 LL765 LL767	Introduct Intelliger Smart G Mechatro	tion to Chaotic E nt Motor Control rid Technology onics	Dynamical Syster Iers		0 0 0 0	0 3 0 3 0 3 0 3 0 3	ELL883 ELL888 ELL890	Drive Systems Embedded Intelligence Advanced Machine Learning Computational Neuroscience	3 3 3	0 0	
LL778	Dynamic	ystem Dynamic Modelling And ble Energy Syst	Control of	3 3		03 03	ELL891 ELL893 ELV700	Advances in Deep Learning Cyber-Physical Systems Special Module in Systems and Control	3 3 1	0 0 0	

Sem.			Courses			Lecture courses	C	ontac	t h/w	/eek	Credits
Jenn		(Number, Abbrev	iated Title, L-T-P, Cr	edits)		Cou	L	Т	Р	Total	Cre
I	ELL700 Linear Systems Theory (3-0-0)	ELL701 Mathematical Methods in Control (3-0-0)	ELL702 Nonlinear Systems (3-0-0)	ELP800 Control Systems Lab (0-0-2)	OE (3-0-0)	4	12	0	2	14	13
п	ELL703 Optimal Control Theory (3-0-0)	ELL705 Stochastic Filtering and Identification (3-0-0)	ELP801 Advanced Control Lab (0-0-4)	PE (3-0-0)		3	9	0	4	13	11
Summer											
III (Project based) OR	ELD801 Major Project Part-I (0-0-12)		PE (3-0-0)	OE (3-0-0)		2	6	0	12	18	12
III (Course based)	PE (3-0-0)	PE (3-0-0)	PE (3-0-0)	OE (3-0-0)		4	12	0	0	12	12
IV (Project based) OR	ELD802 Major Project Part-II (0-0-24)					0	0	0	24	24	12
IV (Course based)	ELD801 Major Project Part-I (0-0-12)		PE (3-0-0)	PE (3-0-0)		2	6	0	12	18	12

Master of Technology in Communication Engineering Department of Electrical Engineering

Cate	gory	PC	PE	OI	Ε			Total					
Cre	dits	24	18	6				48					
Program	Core								FI I 821	and Networking-II LL833 CMOS RF IC Design LL894 Network Performance Modeling and Analysis LP718 Telecommunication Software Laboratory LP721 Embedded Telecommunication Systems Laboratory LV710 Special Module in Cyber Security LV720 Special Module in Communication Systems and Networking-I LV821 Special Module in Communication Systems and Networking-II SRL708 Sonar Systems Engineering SRL709 Underwater Electronic Systems SRL712 RF and Microwave Active Circuits SRL715 Radiating Systems for RF Communication treamed Electives (EEE) in (Information Processing LD810 Minor Project (Communication Engineering) LD812 Major Project Part-II LL701 Mathematical Methods in Control LL714 Basic Information Theory LL715 Digital Image Processing LL720 Advanced Digital Signal Processing LL724 Multichannel Signal Processing LL724 Multichannel Signal Processing LL725 Computer Graphics LL794 Introduction to Machine Learning LL794 Human-Computer Interface LL823 Selected Topics in Information Processing-I LL824 Special Modules in Information Processing-I LL825 Special Modules in Information Processing-I LL			
ELD811		ject Part-I (Comm			0	0	10	6			Ű	Č	
ELL711	Signal T		iunication Engli	leening)	3	0		3	ELL822	0	3	C)
ELL712		ommunications			3	0		3					
ELL712		ve Theory and			3	0		3	ELL833		3	(0
ELL719		n and Estimatio			3	0		3	ELL894		3	(0
ELP719		ve Laboratory	in meory		õ		4	3	ELP718	Telecommunication Software Laboratory	0		1
		Communicatio	n Laboratory		õ	1		3	ELP721		0		1
	Total Cr		Laboratory		Ũ	•	•	24		Laboratory			
	10101 01	cuito						24	ELV710				
Program	Elective	S							ELV720	0 Special Module in Communication Systems			
3SP710	Commun	ication & Signal	Processing Tec	h. Lab.	0	1	4	3		and Networking-I			
		Ū.	Ū						ELV821	0			0
Streame	d Electiv	es (EEE) in (Co	ommunicatio	n <mark>Syste</mark>	ms)							
3SP710	Commun	ication & Signal	Processing Tec	h. Lab.	0	1	4	3			3		0
		oject (Commun			0	0	6	3			3		0
ELD812		oject Part-II	0	0,	0	0	24	12			3		0
ELL701	Mathem	atical Methods	in Control		3	0	0	3	CRL715	Radiating Systems for RF Communication	3		0
ELL710	Coding 1	heory			3	0	0	3	Streame	d Electives (EEE) in (Information Processir	na)		
ELL714		ormation Theor			3	0		3			0		0
ELL716		nunication Switc		mission		0		3			0		0
		Communication			3	0		3			3		0
		d Digital Signa			3	0		3			3		0
		Theory and Te			3	0		3		,	3		0
ELL723		nd Communica			3	0		3		5 5 F	3		0
ELL724		nnel Signal Pro	0		3	0		3			3		0
ELL725		Communicatio	ons		3	0		3			3		0
	I.C. Tech	inology d Nanoelectror	line		3 3	0 0	-	3 3	ELL784		3		0
ELL732			lics		3 3	0		3 3	ELL786	6	3		0
ELL734 ELL735		SI design ntegrated Circu	ito		3 3	0		3		5	3		0
ELL735	•	er Communicati			3	0		3			3		0
ELL785		ecurity and Info		anco	3	0		3	ELL794				0
ELL810		ve Propagation			3	0		3	ELL823	•	3 3		0
ELL812		d Information T			3	0		3	ELL824				0
ELL814		Optical Comm			3	0		3	ELV781				0
ELL815		/ireless Commu			3	0		3	ELV823				0
										1 0			
ELL816	Satellite	Communication	า		3	0	0	3	CRL/04	Sensor Array Signal Processing	3		0

Sem.		Cou		Lecture courses	C	Contac	t h/we	ek	Credits	
		(Number, Abbreviated	s)	Ceu Ceu	L	Т	Р	Total	L P L P	
I	ELL 711 Signal theory (3-0-0)	ELL712 Digital Comm. (3-0-0)	ELL 713 Microwave Theory and Techniques (3-0-0)	ELP 719 Microwave Lab. (0-1-4)	3	9	1	4	14	12
II	ELL719 Detection and Estimation Theory (3-0-0)	ELP725 Wireless Comm. Lab. (0-1-4)	PE-1 (3-0-0)	PE-2 (3-0-0)	3	9	1	4	14	12
Summer										
III	ELD811 Major Project Part-I (0-0-12) 6		OE-1 (3-0-0)	OE-2 (3-0-0)	2	6	0	12	18	12
IV (Project based) OR	ELD812 Major Project Part-II (0-0-24) 12				0	0	0	24	24	12
IV (Course based)	PE-3 (3-0-0)	PE-4 (3-0-0)	PE-5 (3-0-0)	PE-6 (3-0-0)	4	12	0	0	12	12

Master of Technology in Integrated Electronics and Circuits Department of Electrical Engineering

Cate	gory	PC	PE	00	:			Total								
Cre	dits	24	18	6				48								
Program	Core								ELL738	Micro and Nano Photonics	3	0	0	3		
		aiaat Dart I			0	0	10	6	ELL739	Advanced Semiconductor Devices		0	0	3		
ELD831		oject Part-I	irouito)		0	0	12	0	ELL740	Compact Modeling of Semiconductor Devices		0		3		
ELL730	I.C. Tech	ed Electronic Ci	ircuits)		3	0	0	3	ELL741	Neuromorphic Engineering	3		0	3		
ELL730 ELL732		id Nanoelectron	ioo		3	-	-	3	ELL742	Introduction to MEMS Design	3	Õ		3		
ELL732		SI design	105		3	-	-	3	ELL743	Photovoltaics	3	0	0	3		
		ntegrated Circui	ite		3			3	ELL744			0	0	3		
ELP831			113		0		-	3	ELL745	Quantum Electronics	3	0	0	3		
ELP832					0		6	3	ELL746	Biomedical Electronics	3		0	3		
	Total Cr	,			0	0	0	24	ELL749	Semiconductor Memory Design	3			3		
	Total Cr	eans						24	ELL791	Neural Systems and Learning Machines	3	0	2	4		
Program	n Electives								ELL830	Issues in Deep Submicron VLSI Design	3		0	3		
			N Processing Tech La		n & Signal Processing Tech.		0	4	4	2	ELL832	Selected Topics in IEC-I	3		0	3
		•	•	II. Lau.	0	1	4	3	ELL834	Selected Topics in IEC-II	3	0	0	3		
Streame	d Electiv	es (EEN) in (VL	.SI Design)						ELP830	Semiconductor Processing Laboratory	0		6	3		
COL719	Synthes	is of Digital Syst	tems		3	0	2	4	ELP833	Device and Materials Characterization Lab.	Ō			3		
ELD830					0	0			ELV734	Special Module in Scientific Writing for Research			0	1		
ELD832	Major Pr	oject Part-II			0	0	24	12	ELV833	Special Module in Semiconductor Business	1			1		
ELL720	Advance	ed Digital Signal	Processing		3	0	0	3		Management		Ũ	Ũ	•		
ELL731		ignal Circuit Des			3	0	0	3	ELV834		1	0	0	1		
ELL733	Digital A	SIC Design	-		3	0	2	4								
ELL736	Solid Sta	ate Imaging Sen	isors		3	0		3		d Electives (EEN) in (Embedded Intelligent				-		
ELL737	Flexible	Electronics			3	0		3		Synthesis of Digital Systems		0				
ELL740		t Modeling of Se		Devices	3	0		3		Advanced Topics in Embedded Computing	3			3		
ELL741		orphic Engineeri			3	0		3		Minor Project	0			3		
ELL747		nd Passive Filte			3			3		Major Project Part-II	0	0	_	4 12		
ELL748		on-Chip Design			3	0		3	ELL720	Advanced Digital Signal Processing	3		0	3		
ELL749		ductor Memory	Design				0	3	ELL731	Mixed Signal Circuit Design	3	0	0	3		
ELL782		er Architecture			3	0		3	ELL733	Digital ASIC Design	3	0		4		
ELL791		systems and Lea					_	4	ELL736	Solid State Imaging Sensors	3			3		
ELL830		Deep Submicro						3	ELL748	System-on-Chip Design and Test	3	-	0	3		
ELL831		VLSI, MEMS, a		embly	3			3	ELL782	Computer Architecture	3		0	3		
ELL832		Topics in IEC-I			3			3	ELL784	Introduction to Machine Learning	3		0	3		
ELL833		RF IC Design			3			3	ELL787	Embedded Systems and Applications	3	-	0	3		
ELL834		I Topics in IEC-I			3			3	ELL789	Intelligent Systems	3		0	3		
ELP830		ductor Processi			0			3 1	ELL791	Neural Systems and Learning Machines	3	0	2	4		
ELV734 ELV830		Iodule in Scientific Module in Low F			1	0 0	-	1	ELL830	Issues in Deep Submicron VLSI Design	3		0	3		
ELV830 ELV831		Module in VLSI		iyn	1	0		1	ELL831	CAD for VLSI, MEMS, and Nanoassembly	3			3		
ELV831 ELV832		Module in Mach			1	0		-	ELL832	Selected Topics in IEC-I	3	-	0	3		
			-						ELL834	Selected Topics in IEC-II	3		0	3		
Streame	d Electiv	es (EEN) in (Na	noelectronic	s and P	'no	tor	lics	5)	ELL883	Embedded Intelligence	3	-	0	3		
ELD830	Minor Pr	oject			0	0	6	3	ELV734	Special Module in Scientific Writing for Research	1	0	0	1		
ELD832		oject Part-II			0			12	ELV831	Special Module in VLSI Testing	1	0	0	1		
LLDOOL	ind joint i				U	0	~ .			opeoid module in veoling		-	•	-		

Sem.		Courses			Lecture courses	С	ontac	t h/w	veek	Credits
Jeni.	(N	umber, Abbreviated Title,	L-T-P, Credits)		Cou	L	Т	Р	Total	Ce
I	ELL732 Micro and Nanoelectronics (3-0-0)	ELL735 Analog Integrated Circuits (3-0-0)	ELL734 MOS VLSI Design (3-0-0)	ELP831 IEC Lab-I (0-0-6)	3	9	0	6	15	12
II	PE (3-0-0)	ELP832 IEC Lab-II (0-0-6)	ELL730 I.C. Technology (3-0-0)	PE/OE (3-0-0)	3	9	0	6	15	12
Summer	·									
III	ELD831 Major Project Part-I (0-0-12)		PE/OE (3-0-0)	PE/OE (3-0-0)	2	6	0	12	18	12
IV (Project based) OR	ELD832 Major Project Part-II (0-0-24)				0	0	0	24	24	12
IV (Course based)	PE/OE (3-0-0)	PE/OE (3-0-0)	PE/OE (3-0-0)	PE/OE (3-0-0)	4	12	0	0	12	12

Programme Code: **EEP**

Master of Technology in Power Electronics, Electrical Machines and Drives Department of Electrical Engineering

The overall credits structure

Cate	gory	PC	PE	OC			Total						
Crea	dits	24	18	6			48						
Program	Core		I Processing Electrical Machines Dower Electronic					ELL758	Power Quality	3	0	0	
ELD851	Maior Pr	oject Part-I		0	0	12	2.6	ELL759	Power Electronic Converters for Renewable	3	0	0	
		g of Electrical M	lachines	3	0		3		Energy Systems				
		lectronic Conve		3	0	0	3	ELL760	Switched Mode Power Conversion	3	0	0	
ELL752	Electric	Drive System		3	0	0	3	ELL761	Power Electronics for Utility Interface	3	0	0	
ELL850	Digital C	ontrol of Power	Electronics and	3	0	0		ELL762	Intelligent Motor Controllers Advanced Electric Drives Electric Vehicles Smart Grid Technology		0	-	
	Drive Sy							ELL763	Advanced Electric Drives Electric Vehicles Smart Grid Technology Appliance Systems		0	0	
ELP850	Electrica	I Machines Labo	oratory	0	0	3	1.5	ELL764		3	0	0	
ELP851	Power E	lectronics Labor	ratory	0	0	3	1.5	ELL765	Electric Vehicles Smart Grid Technology Appliance Systems Mechatronics		0	-	
ELP852	Electrica	al Drives Laborat	tory	0	0	3	1.5	ELL766	Appliance Systems		0	0	
ELP853	DSP Ba	sed Control of P	ower Electronics	0	0	3	1.5	ELL767		3	0	0	
	and Driv	es Laboratory						ELL768		3	0	0	
	Total Cr	redits					24		Mechatronics Computer Aided Design of Power Electronic Systems				
								ELL787	Electronic Systems Embedded Systems and Applications		0	0	
Program	Elective	S						ELL791	Neural Systems and Learning Machines	3	0	2	
ELD850	Minor Pr	oject		0	0	6	3	ELL851	Computer Aided Design of Electrical Machines		0		
ELD852	Major Pr	oject Part-II		0	0	24	12	ELL852	Condition Monitoring of Electrical Machines	3	0	0	
ELL700	Linear S	ystems Theory		3	0	0	3	ELL853	Advanced Topics in Electrical Machines	3	0	0	
ELL703	Optimal	Control Theory		3	0	0	3	ELL854	Selected Topics in Electrical Machines	3	0	0	
ELL704	Advance	ed Robotics		3	0	0	3	ELL855	High Power Converters	3	0	0	
ELL706	Digital C	ontrol		3	0	0	3	ELL856	Advanced Topics in Power Electronics	3	0	0	
ELL720	Advance	ed Digital Signal	Processing	3	0	0	3	ELL857	Selected Topics in Power Electronics	3	0	0	
ELL753	Physical	Phenomena in	Electrical Machir	nes 3	0	0	3	ELL858	Advanced Topics in Electric Drives	3	0	-	
ELL754		ent Magnet Mac		3	0	0	3	ELL859	Selected Topics in Electric Drives	3	0	0	
		Reluctance Mad		3	0	0	3	ELP854	Electrical Machines CAD Laboratory	0	1	4	
		Electrical Machir	nes	3	0		3	ELP855		0	1	4	
ELL757	Energy I	Efficient Motors		3	0	0	3	ELT850	Industrial Training and Seminar	0	0	6	

Sem.		(Number Abbre	Courses viated Title, L-T-P, (Cradita)		Lecture courses	C	ontac	t h/w	veek	Credits
		(Number, Abbre	vialeu fille, L-T-P, C	Lieuits)		C Le	L	Т	Р	Total	<u>ප</u>
I	ELL750 Modelling of Electrical Machines (3-0-0)	ELL751 Power Electronic Converters (3-0-0)	ELP850 Electrical Machines Laboratory (0-0-3)	ELP851 Power Electronics Laboratory (0-0-3)	PE/OE (3-0-0)*	3	9	0	6	15	12
П	ELL752 Electric Drive System (3-0-0)	ELL850 Digital Control of Power Electronics and Drive Systems (3-0-0)	ELP852 Electrical Drives Laboratory (0-0-3)	ELP853 DSP Based Control of Power Electronics and Drives Laboratory (0-0-3)	PE/OE (3-0-0)*	3	9	0	6	15	12
			Projec	t Based							
III	ELD851 Major Project Part-I (0-0-12)	PE/OE (3-0-0)*	PE/OE (3-0-0)*			2	6	0	12	18	12
IV	ELD852 Major Project Part-II (0-0-24)					0	0	0	24	24	12
			(OR) Cou	irse Based	-						
III	PE/OE PE/OE PE/OE (3.0.0) (3.0.0) (3.0.0)			PE/OE (3-0-0)		4	12	0	0	12	12
IV	ELD851 Major Project Part-I (0-0-12)	PE/OE (3-0-0)	PE/OE (3-0-0)			2	6	0	12	18	12

Master of Technology in Power Systems Department of Electrical Engineering

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The overall credits structure

Cate	egory	PC	PE	OC			Total						
Cre	dits	24	18	6			48						
Program ELD871	Major Pr	oject Part-I		0	0	12		ELL758 ELL759	Power Quality Power Electronic Converters for Renewable Energy Systems	-	0 0	-	3 3
ELL770 ELL771 ELL775 ELL776 ELP870 ELP871	Advance Power S Advance Power S Power S	aystem Analysis ad Power System System Dynamics ad Power System System Lab-I System Lab-II	S	3 3 3 0 0		0 0 0 4 4	3 3 3 3 3	ELL772 ELL773 ELL774 ELL777 ELL778	Energy Systems Planning and Operation of a Smart Grid High Voltage DC Transmission Flexible AC Transmission System Power System operation and control Dynamic Modelling And Control of Sustainable Energy Systems		0 0 0 0	0 0 0	3 3 3 3 3
Program ELD870 ELD872 ELL700 ELL712	Linear S	S		0 0 3 3	0 0 0	24 0	24 3 12 3 3	ELL779 ELL870 ELL871 ELL872 ELL873 ELL874	Distribution System Operation and Planning Selected Topics in Power System Power System Transient		0 0 0 0 0	0 0 0 0	3 3 3 3 3 3

Sem.			ourses		Lecture courses	С	ontac	t h/w	eek	Credits
Sem	((number, Abbreviat	ed Title, L-T-P, Cre	dits)	Lec	L	Т	Р	Total	5 U
I	ELL 770 Power System Analysis (3-0-0)	ELL771 Advanced Power System Protection (3-0-0)	ELL775 Power System Dynamics (3-0-0)	ELP870 Power System Lab-I (0-1-4)	3	9	1	4	14	12
п	ELL776 Advanced Power System Optimization (3-0-0)	ELP871 Power System Lab-II (0-1-4)	PE/OE (3-0-0)	PE/OE (3-0-0)	3	9	1	4	14	12
			Summer	· · ·						
ш	ELD871 Major Project Part-I (0-0-12)		PE/OE (3-0-0)	PE/OE (3-0-0)	2	6	0	12	18	12
IV (Project based) OR	ELD871 Major Project Part-II (0-0-24)				0	0	0	24	24	12
IV (Course based)	PE/OE (3-0-0)	PE/OE (3-0-0)	PE/OE (3-0-0)	PE/OE (3-0-0)	4	12	0	0	12	12

Master of Technology in Computer Technology Department of Electrical Engineering

The overall credits structure

Cato	gory	PC	PE	00				Total	
	dits	21	24/27	3/6		_		51	
	uits	21	24/2/	3/0	,			51	
Program	Coro								ELL
					0	0		0	ELL
ELD780	Minor Pr				0	0	4 12	2	ELL
ELD880 ELL780	-	oject Part-I atical Foundatio	one of Comput		0 3	0 0	0	о З	ELL
LLL/00	Technolo				5	0	0	5	ELL
ELL781		e Fundamentals	s for Compute	r	3	0	0	3	ELL
	Technolo				Č	Ŭ	Ũ	Ŭ	ELL
ELL782		er Architecture			3	0	0	3	ELL
ELL783		ig Systems			3	0	2	4	ELL
	Total Cr	redits						21	ELL
_									ELL
Program	Elective	S							ELL
BSP710		ication & Signal	Processing Tec	h. Lab.	0	1	4	3	ELL
ELD881		oject Part-II			0	0		12	ELL
ELL880		Topics in Comp			3	0	0	3	ELL
ELL881	Special	Topics in Comp	uters-II		3	0	0	3	ELP
ELV752		Modules in EE1			1	0	0	1	ELP
ELV780	Special	Module in Com	puters		1	0	0	1	ELP
Streame	d Elective	es (EET) in (Co	ognitive and I	ntelliger	nt :	Sys	ster	ns)	-
Required		. , ,		-		-			Stre
ELL784		tion to Machine	Learning		3	0	0	3	Netv
ELL786		dia Systems	Learning		3	0	õ	3	Req
					Č	Ŭ	Ŭ	Ŭ	ELL
Other Ele	ectives								ELL
ELL704		ed Robotics			3	0	0	3	Oth
ELL707	Systems	Biology			3	0	0	3	Oth
ELL715	Digital In	nage Processin	ng		3	0	2	4	ELL
ELL724		nnel Signal Pro			3	0	0	3	ELL
ELL741	Neuromo	orphic Enginee	ring		3	0	0	3	ELL
ELL785		er Communicat			3	0	0	3	ELL
ELL787		ed Systems an			3	0	0	3	ELL
ELL788		ational Percepti	ion and Cognit		3	0	0	3	
ELL789	0	nt Systems			3	0	0	3	ELL
ELL791	Neural S	Systems and Le	arning Machir		3	0	2	4	ELL
ELL793	Compute				3	0	0	3	ELL
ELL794		Computer Inter	face		3	0	0	3	ELL
ELL795		ntelligence			3	0	0	3	ELL
ELL796		and Systems in	Biology		3	0	0	3	ELL
ELL798	-	echnologies			3	0	0	3	ELL
ELL799		Computing			3	0	0	3	ELL
ELL882		cale Machine L	earning		3	0	0	3	ELL
ELL883		ed Intelligence			3	0	0	3	ELL
ELL884		arning for Natura			3	0	0	3	ELL
ELL885		Learning for Co	omputational F		3	0	0	3	ELL
ELL886		Systems			3	0	0	3	ELL
ELL887		omputing			3	0	0	3	ELL
ELL888		d Machine Lea	•		3	0	0	3	ELL
ELL890		ational Neurosc			3	0	0	3	
ELL891		es in Deep Lear			3	0	0	3	ELL
ELL893	Cyber-P	hysical System	S		3	0	0	3	ELL
Streame	d Elective	es (EET) in (Er	nbedded Inte	lligent S	ys	ter	ns)		ELL
Required					-				ELL
ELL784		tion to Machine	Learning		3	0	0	3	ELP
ELL784 ELL787		ed Systems an	•		3	0	0	3	ELP
		ca cystoms di			5	0	5	0	ELP
Other Ele	ectives								ELP
COL719	Synthesi	is of Digital Sys	stems		3	0	2	4	ELP
COL812		Level Design a			3	0	0	3	_
ELL704	2	ed Robotics	5		3	0	0	3	ELP
	Coding 1				3	0	0	3	Stre
ELL710		пеогу							0116
		ed Digital Signa	I Processing		3	0	0	3	
ELL710	Advance				3 3	0 0	0 0	3 3	Req
ELL710 ELL720	Advance Optoeled	ed Digital Signa	entation						

ELL734	MOS VLSI design	3	0	0	3
ELL735	Analog Integrated Circuits	3	0	0	3
ELL748	System-on-Chip Design and Test	3	0	0	3
ELL766	Appliance Systems	3	0	0	3
ELL767	Mechatronics	3	0	0	3
ELL785	Computer Communication Networks	3	0	0	3
ELL786	Multimedia Systems	3	0	0	3
ELL790	Digital Hardware Design	3	0	0	3
ELL791	Neural Systems and Learning Machines	3	0	2	4
ELL797	Energy-Efficient Computing	3	0	0	3
ELL802	Adaptive and Learning Control	3	0	0	3
ELL883	Embedded Intelligence	3	0	0	3
ELL887	Cloud Computing	3	0	0	3
ELL898	Pervasive Computing	3	0	0	3
ELL899	Testing and Fault Tolerance	3	0	0	3
ELP780	Software Lab	0	1	4	3
ELP781	Digital Systems Lab	0	1	4	3
ELP831	IEC Laboratory-I	0	0	6	3

med Electives (EET) in (Computer Communication and orks) ired Electiv

Required	d Electives				
ELL785	Computer Communication Networks	3	0	0	3
ELL786	Multimedia Systems	3	0	0	3
Other El	ectives				
ELL710	Coding Theory	3	0	0	3
ELL711	Signal Theory	3	0	0	3
ELL712	Digital Communications	3	0	0	3
ELL714		3	0	0	3
ELL716	Telecommunication Switching and	3	0	0	3
	Transmission				
ELL717	Optical Communication Systems	3	0	0	3
ELL723	Broadband Communication Systems	3	0	0	3
ELL725	Wireless Communications	3	0	0	3
ELL784	Introduction to Machine Learning	3	0	0	3
ELL787	Embedded Systems and Applications	3	0	0	3
ELL797	Energy-Efficient Computing	3	0	0	3
ELL813	Advanced Information Theory	3	0	0	3
ELL816	Satellite Communication	3	0	0	3
ELL817	Access Networks	3	0	0	3
ELL818	Telecommunication Technologies	3	0	0	3
ELL820	Photonic Switching and Networking	3	0	0	3
ELL887	Cloud Computing	3	0	0	3
ELL889	Protocol Engineering	3	0	0	3
ELL892	Internet Technologies	3	0	0	3
ELL894	Network Performance Modeling	3	0	0	3
	and Analysis				
ELL895	Network Security	3	0	0	3
ELL896	Mobile Computing	3	0	0	3
ELL897	Network Management	3	0	0	3
ELL898	Pervasive Computing	3	0	0	3
ELP720	· · · · · · · · · · · · · · · · · · ·	0	1	4	3
ELP780		0	1	4	3
ELP781		0	1	4	3
ELP782		0	1	4	3
ELP821	Advanced Telecommunication Networks	0	1	4	3
ELP822	Laboratory Network Software Laboratory	0	1	4	3
		-	-	-	
Streame	d Electives (EET) in (Multimedia Informatio	on Pro	oce	ess	ing)
	d Electives				
	Multimedia Systems	3	0	0	3
ELL787	Embedded Systems and Applications	3	0	0	3

ELL710Coding Theory3003Other ElectivesELL711Signal Theory3003ELL723Broadband Communication Systems3003ELL714Basic Information Theory3003ELL723Broadband Communication Systems3003ELL715Digital Image Processing3024ELL766Appliance Systems3003ELL718Statistical Signal Processing3003ELL772Planning and Operation of a Smart Grid3003ELL719Detection and Estimation Theory3003ELL786Multimedia Systems and Applications3003ELL726Advanced Digital Signal Processing3003ELL787Emergy-Efficient Computing3003ELL785Computer Communication Networks3003ELL788Agent Technologies3003ELL792Computer Graphics3003ELL887Cloud Computing3003ELL793Advanced Information Theory3003ELL887Cloud Computing3003ELL793Computer Vision3003ELL895Network Security3003ELL813Advanced Information Theory30<	Other Electives					ELL785 Computer Communication Networks	3	3	0 (0	3
ELL714Basic Information Theory3003003ELL715Digital Image Processing3024ELL766Appliance Systems3003ELL718Statistical Signal Processing3003ELL772Planning and Operation of a Smart Grid3003ELL719Detection and Estimation Theory3003ELL786Multimedia Systems3003ELL720Advanced Digital Signal Processing3003ELL787Embedded Systems and Applications3003ELL785Computer Communication Networks3003ELL798Agent Technologies3003ELL792Computer Graphics3003ELL884Deep Learning for Natural Language Processing3003ELL793Computer Vision3003ELL887Cloud Computing3003ELL813Advanced Information Theory3003ELL892Internet Technologies3003ELL882Large-Scale Machine Learning3003ELL898Pervasive Computing3003ELL882Large-Scale Machine Speech Communication3003ELL898Pervasive Computing3003ELL707 <td< td=""><td>ELL710 Coding Theory</td><td>3</td><td>0</td><td>0</td><td>3</td><td>Other Electives</td><td></td><td></td><td></td><td></td><td></td></td<>	ELL710 Coding Theory	3	0	0	3	Other Electives					
ELL714Basic Information Theory3003ELL765Smart Grid Technology3003ELL715Digital Image Processing3003ELL766Appliance Systems3003ELL718Statistical Signal Processing3003ELL772Planning and Operation of a Smart Grid3003ELL719Detection and Estimation Theory3003ELL786Multimedia Systems3003ELL720Advanced Digital Signal Processing3003ELL786Embedded Systems and Applications3003ELL784Introduction to Machine Learning3003ELL797Energy-Efficient Computing3003ELL785Computer Communication Networks3003ELL798Agent Technologies3003ELL792Computer Graphics3003ELL887Cloud Computing3003ELL793Computer Vision3003ELL895Internet Technologies3003ELL813Advanced Information Theory3003ELL895Network Security3003ELL824Large-Scale Machine Learning3003ELL896Mobile Computing3003	- 5 5	3	0	0	3	ELL723 Broadband Communication Systems	3	}	0 (0	3
ELL718Statistical Signal Processing3003ELL722Planning and Operation of a Smart Grid3003ELL719Detection and Estimation Theory3003ELL722Planning and Operation of a Smart Grid3003ELL720Advanced Digital Signal Processing3003ELL787Embedded Systems and Applications3003ELL784Introduction to Machine Learning3003ELL797Energy-Efficient Computing3003ELL785Computer Communication Networks3003ELL798Agent Technologies3003ELL792Computer Graphics3003ELL887Cloud Computing3003ELL813Advanced Information Theory3003ELL892Internet Technologies3003ELL822Large-Scale Machine Learning3003ELL896Mobile Computing3003CRL707Human & Machine Speech Communication3003ELL898Pervasive Computing3003ELP781Digital Systems Lab0143ELP781Digital Systems Lab0143Required ElectivesElectivesELP782Computer Networks Lab0143 </td <td>ELL714 Basic Information Theory</td> <td>3</td> <td>0</td> <td>0</td> <td>3</td> <td></td> <td>3</td> <td>}</td> <td>0 (</td> <td>0</td> <td>3</td>	ELL714 Basic Information Theory	3	0	0	3		3	}	0 (0	3
ELL719Detection and Estimation Theory3003ELL786Multimedia Systems3003ELL720Advanced Digital Signal Processing3003ELL787Embedded Systems and Applications3003ELL784Introduction to Machine Learning3003ELL787Embedded Systems and Applications3003ELL785Computer Communication Networks3003ELL798Agent Technologies3003ELL792Computer Graphics3003ELL884Deep Learning for Natural Language Processing3003ELL793Computer Vision3003ELL887Cloud Computing3003ELL813Advanced Information Theory3003ELL895Network Security3003ELL882Large-Scale Machine Learning3003ELL896Mobile Computing3003CRL707Human & Machine Speech Communication3003ELL898Pervasive Computing3003ELP780Software Lab0143ELP781Digital Systems Lab0143Required ElectivesElectives0143ELP782Computer Networks Lab0143 <td>ELL715 Digital Image Processing</td> <td>3</td> <td>0</td> <td>2</td> <td>4</td> <td>ELL766 Appliance Systems</td> <td>3</td> <td>3</td> <td>0 (</td> <td>0</td> <td>3</td>	ELL715 Digital Image Processing	3	0	2	4	ELL766 Appliance Systems	3	3	0 (0	3
ELL720Advanced Digital Signal Processing3003ELL787Embedded Systems and Applications3003ELL784Introduction to Machine Learning3003ELL797Energy-Efficient Computing3003ELL785Computer Communication Networks3003ELL798Agent Technologies3003ELL792Computer Graphics3003ELL884Deep Learning for Natural Language Processing3003ELL793Computer Vision3003ELL892Internet Technologies3003ELL813Advanced Information Theory3003ELL895Network Security3003ELL882Large-Scale Machine Learning3003ELL896Mobile Computing3003CRL707Human & Machine Speech Communication3003ELL898Pervasive Computing3003Streamed Electives(EET) in (Internet Technologies)5ELP780Software Lab0143ELP782Computer Networks Lab014330143	ELL718 Statistical Signal Processing	3	0	0	3	ELL772 Planning and Operation of a Smart Grid	3	}	0 (С	3
ELL784Introduction to Machine Learning3003ELL797Energy-Efficient Computing3003ELL785Computer Communication Networks3003ELL798Agent Technologies3003ELL786Computational Perception and Cognition3003ELL884Deep Learning for Natural Language Processing3003ELL792Computer Graphics3003ELL887Cloud Computing3003ELL813Advanced Information Theory3003ELL895Network Security3003ELL882Large-Scale Machine Learning3003ELL896Mobile Computing3003CRL707Human & Machine Speech Communication3003ELL898Pervasive Computing3003Streamed Electives(EET) in (Internet Technologies)I43ELP780Software Lab0143ELP782Computer Networks Lab0143ELP782Computer Networks Lab0143	ELL719 Detection and Estimation Theory	3	0	0	3	ELL786 Multimedia Systems	3	}	0 (0	3
ELL785Computer Communication Networks3003ELL798Agent Technologies3003ELL788Computational Perception and Cognition3003ELL884Deep Learning for Natural Language Processing3003ELL792Computer Graphics3003ELL884Deep Learning for Natural Language Processing3003ELL793Computer Vision3003ELL892Internet Technologies3003ELL813Advanced Information Theory3003ELL895Network Security3003ELL882Large-Scale Machine Learning3003ELL896Mobile Computing3003CRL707Human & Machine Speech Communication3003ELL898Pervasive Computing3003Streamed Electives(EET) in (Internet Technologies)ELP780Software Lab0143Required ElectivesElectives0143ELP782Computer Networks Lab0143	ELL720 Advanced Digital Signal Processing	3	0	0	3	ELL787 Embedded Systems and Applications	3	5	0 (С	3
ELL788Computational Perception and Cognition3003ELL792Computer Graphics3003ELL793Computer Vision3003ELL813Advanced Information Theory3003ELL882Large-Scale Machine Learning3003CRL707Human & Machine Speech Communication3003Streamed Electives(Internet Technologies)014Required Electives0143ELL882Computer Vision0143003014300143CRL707143014300143CRL7071143CRL7071143CRL7071143CRL7071143CR17071143CR17071143CR17071143CR17071114CR17071114CR17071113CR17071113CR17071113CR17071113CR17071113	ELL784 Introduction to Machine Learning	3	0	0	3	ELL797 Energy-Efficient Computing	3	5	0 (С	3
ELL192Computer Graphics3003003ELL792Computer Graphics3003ELL887Cloud Computing3003ELL793Computer Vision3003ELL892Internet Technologies3003ELL813Advanced Information Theory3003ELL895Network Security3003ELL882Large-Scale Machine Learning3003ELL896Mobile Computing3003CRL707Human & Machine Speech Communication3003ELL898Pervasive Computing3003Streamed Electives (EET) in (Internet Technologies)ELP780Software Lab0143Required ElectivesElectives01432143Required ElectivesElectives014332143Required ElectivesElectives014332143Repuired ElectivesElectives014333143Repuired ElectivesElectives014333333333333Repuired ElectivesElectivesElectivesElectives01 <td< td=""><td>ELL785 Computer Communication Networks</td><td>3</td><td>0</td><td>0</td><td>3</td><td>ELL798 Agent Technologies</td><td>3</td><td>5</td><td>0 (</td><td>3</td><td>3</td></td<>	ELL785 Computer Communication Networks	3	0	0	3	ELL798 Agent Technologies	3	5	0 (3	3
ELL792Computer Vision3003ELL892Internet Technologies3003ELL813Advanced Information Theory3003ELL822Large-Scale Machine Learning3003CRL707Human & Machine Speech Communication3003Streamed Electives(EET) in (Internet Technologies)ELP780Software Lab014Required ElectivesElectives0143ELP781Digital Systems Lab0143ELP782Computer Networks Lab0143	ELL788 Computational Perception and Cognition	3	0	0	3		ssing 3	5	0 (C	3
ELL875Computer Vision3003ELL813Advanced Information Theory3003ELL882Large-Scale Machine Learning3003CRL707Human & Machine Speech Communication3003Streamed Electives(EET) in (Internet Technologies)ELP780Software Lab014Required ElectivesElectives0143ELP781Digital Systems Lab0143	ELL792 Computer Graphics	3	0	0	3	1 0	3	5	•	•	3
ELL883Advanced information medry3003ELL882Large-Scale Machine Learning3003CRL707Human & Machine Speech Communication3003Streamed Electives (EET) in (Internet Technologies)ELP781ElP782Software Lab014Required ElectivesElectivesELP782Computer Networks Lab0143	ELL793 Computer Vision	3	0	0	3	5	3	,	•	•	3
ELL882Large-Scale Machine Learning3003CRL707Human & Machine Speech Communication3003Streamed Electives (EET) in (Internet Technologies)ELP721Embedded Telecommunication Systems Laboratory014Required ElectivesElectivesELP780Software Lab0143ELP781Digital Systems Lab0143ELP782Computer Networks Lab0143	ELL813 Advanced Information Theory	3	0	0	3	5	3	,	-	-	•
CRL707Human & Machine Speech Communication3003003Streamed Electives (EET) in (Internet Technologies)ELP721Embedded Telecommunication Systems Laboratory0143Required ElectivesELP780Software Lab0143ELP781Digital Systems Lab0143ELP782Computer Networks Lab0143	ELL882 Large-Scale Machine Learning	3	0	0	3	1 8	3	,	· ·	•	•
Streamed Electives (EET) in (Internet Technologies)ELP721Embedded Telecommunication Systems Laboratory0143ELP780Software Lab0143ELP781Digital Systems Lab0143ELP782Computer Networks Lab0143	o o	3	0	0	3		~		•	•	Ũ
Streamed ElectivesELP781Digital Systems Lab0143Required ElectivesELP782Computer Networks Lab0143							atory C	1	1 4	4	3
Required ElectivesELP782 Computer Networks Lab0143	Streamed Electives (EET) in (Internet Technologies	;)					C	1	1	•	3
	Denvire d. Electione	-				o ,	C	1		•	•
ELL784 Introduction to Machine Learning 3 0 0 3 ELP855 Smart Grids Laboratory 0 1 4 3		_	_		_	•	C	1	1 4	•	Ũ
	ELL784 Introduction to Machine Learning	3	0	0	3	ELP855 Smart Grids Laboratory	C	1	1 4	4	3

Sem.			Courses			Lecture courses	C	ontac	t h/w	reek	Credits
		(Number, Abbrev	iated Title, L-T-P, C	Credits)		Cou	L	Т	Р	Total	ð
I	ELL780 Mathematical Foundations of Computer Technology (3-0-0)	ELL781 Software Fundamentals for Computer Technology (3-0-0)	ELL782 Computer Architecture (3-0-0)	PE-1 (3-0-0)	PE-2 (3-0-0)	5	15	0	0	15	15
п	ELL783 Operating Systems (3-0-2)	ELD780 Minor Project (0-0-4)	PE-3 (3-0-0)	PE-4 (3-0-0)		4	9	0	6	15	12
	Sur	nmer: [PC-6] ELD	880 Major Project F	Part 1 (for M.Tech with	Dissertation	ר)					
III (M.Tech. with DIssertation) OR	ELD880 Major Project Part-I (0-0-12)	PE-5 (3-0-0)	OE-1 (3-0-0)			2	6	0	12	18	12
III (M.Tech. without Dissertation)	PE-5 (3-0-0)	PE-6 (3-0-0)	PE-7/OE-1 (3-0-0)	PE-8/OE-2 (3-0-0)		4	12	0	0	12	12
IV (M.Tech. with Dissertation) OR	ELD881 Major Project Part-II (0-0-24)					0	0	0	24	24	12
IV (M.Tech. without Dissertation)	ELD880 Major Project Part-I (0-0-12)	PE-7/OE-1 (3-0-0)	PE-8/OE-2 (3-0-0)			2	6	0	12	18	12

Master of Technology in Materials Engineering Department of Materials Science and Engineering

Cate	gory	PC	PE	OE/	/PE			RE		Tot	tal
Cre	dits	32	06	0	6			04		4	8
Program MLL701 MLL702 MLL703 MLP704	Structure Thermoor Mathematin Mater		terials outational Me	thods	3 3 3	0 0 0	0 0 2 4	3 3 4	MI MI AF MI	_L714 _L715 _L716/ PL767 _L717 _L718	Fract Adva Engir Engir Polyn
MLD801 MLD802	Lab M.Tech.	s Processing ar Project-I Project-II redits		auon	0 0	0	18	·	MI MI	_L727 _L730 _L732 _L734	Textu
MLN710	ded Core Researc		am Core		0	0	2	1	MI MI	_L736 _L738 _L740 _L742	in Me Tribol Electr Nanos Micro
MLV705 MLL711	Special ⁻	Topics in Materi ical Behaviour c	als		1 3	0 0	0 0	1 3	MI MI	_L748 _L744 _L746 _L750	Solid Mate Cryst Impe
MLL712/ APL753 MLL713	Material	s Design and Se ransformations	election		3 3	0 0	0 0	3 3		_L752 _L760	Cree Mate Perfo

	MLL714	Fracture Mechanics	3	0	0	3
3	MLL715	Advanced Engineering Materials	3	0	0	3
3	MLL716/					
Ĺ	APL767	Engineering Failure Analysis and Prevention	3	0	0	3
ſ	MLL717	Engineering and Specialty Polymers	3	0	0	3
ı	MLL718	Polymeric Nanomaterials and Nanocomposites	3	0	0	3
r	MLL727	Smart Polymeric Materials	3	0	0	3
`	MLL730	Diffusion and Kinetics	3	0	0	3
, ,	MLL732	Porous Materials	3	0	0	3
,	MLL734	Texture and Grain Boundary Engineering	3	0	0	3
32		in Metals and Alloys				
	MLL736	Tribology and Surface Engineering of Materials	3	0	0	3
	MLL738	Electronic Devices and Characterization	3	0	0	3
	MLL740	Nanostructures and Nanomaterials	3	0	0	3
	MLL742	Micro and Nano Fabrication in Materials Engg.	3	0	0	3
	MLL748	Solid State Diffusion and Kinetics	3	0	0	3
2	MLL744	Materials for Additive Manufacturing	3	0	0	3
,	MLL746	Crystals, Symmetry and Tensors	3	2	0	5
	MLL750	Imperfections in Materials and Applications	3	0	0	3
	MLL752	Creep and Superplasticity of Materials	3	0	0	3
3	MLL760	Materials Simulation Methods Using High	2	0	2	3
3		Performance Computing				

Sem.			Courses				Lecture courses	C	Contact	h/we	ek	Credits
		(Number, Abbrev	viated Litle, L-I-	P, credits)			Col	L	Т	Р	Total	ð
I	MLL701 Structure and Characterization of Materials (3-0-0) 3	MLL702 Thermodynamics of materials (3-0-0) 3	MLL703 Mathematical and Computational methods in Materials (3-0-2) 4	MLL704 Materials Processing and Characterization Lab (1-1-4) 4	MLV705 (RE-1) Special topics in Materials (1-0-0) 1		5	11	1	6	18	15
п	MLN710 (NG) Research Seminar (0-0-2) 1	MLL711 (RE) 2 Mechanical Behaviour of Materials (3-0-0) 3	PE-1 (3-0-0) 3	PE-2 (3-0-0) 3	OE-1 / PE-3 (3·0-0) 3	OE-2 / PE-4 (3-0-0) 3	6	15	0	2	17	15
				Summer								
III	MLD801 (0-0-18) 9						0	0	0	0	18	9
IV	MLD802 (0-0-18) 9						0	0	0	0	18	9

Master of Technology in Polymer Science and Technology Department of Materials Science and Engineering

Category	PC	PE	OE	Total
Credits	42	12	0	54

Program	Core					Program	Electives				
MLL719	Polymer Chemistry	3	0	0	3	MLL717	Engineering and Specialty Polymers	3	0	0	3
MLL720	Polymer Processing	3	0	0	3	MLL718	Polymeric Nanomaterials and	3	0	0	3
MLL721	Polymer Physics	3	0	0	3		Nanocomposites				
MLL722	Polymer Technology	3	0	0	3	MLL729	Polymer Blends and Composites	3	0	0	3
MLL723	Polymer Characterization	3	0	0	3	MLL731	Rubber Technology	3	0	0	3
MLL724	Polymer Engineering and Rheology	3	0	0	3	MLL733	Polymer Reaction Engineering	3	0	0	3
MLL725	Polymer Testing and Properties	3	0	0	3	MLL735	Polymer Product & Mould Design	3	0	0	3
MLP726	Polymer Synthesis and Characterization	0	0	4	2	MLL737	Polymer Degradation and Stabilization	3	0	0	3
	Laboratory					MLL739	Polymer Coatings	3	0	0	3
MLP728	Polymer Rheology and Processing Lab	0	0	2	1	MLL741	Biodegradable Polymeric Materials	3	0	0	3
MLD811	Major Project Part-I	0	0	12	26	MLS800	Independent Study	0	3	0	3
MLD812	Major Project Part-II	0	0	24	4 12	2 MLV700	Special Lectures in Polymers	1	0	0	1
	Total Credits				42	MLD799	Minor Project	0	0	6	3

Sem.			Courses			Lecture courses	Co	ontac	t h/w	reek	Credits
Join.		(Number, A	bbreviated Title,	L-T-P, Credits)		Cou	L	Т	Р	Total	Cre
I	MLL719 Polymer Chemistry (3-0-0) 3	MLL721 Polymer Physics (3-0-0) 3	MLL723 Polymer Characterization (3-0-0) 3	MLL724 Polymer Engineering and Rheology (3-0-0) 3	MLP726 Polymer Synthesis and Characterization Laboratory (0-0-4) 2	4	12	0	4	16	14
п	MLL720 Polymer Processing (3-0-0) 3	MLL722 Polymer Technology (3-0-0) 3	MLP728 Polymer Rheology and Processing Lab (0-0-2) 1	MLL725 Polymer Testing and Properties (3-0-0) 3	PE-1 (3-0-0) 3	4	12	0	2	14	13
				Summer							
ш	PE-2 (3-0-0) 3	PE-3 (3-0-0) 3	PE-4 (3-0-0) 3	MLD811 Major Project Part-I (0-0-12) 6		3	9	0	12	21	15
IV	MLD812 Major Project Part-II (0-0-24) 12					0	0	0	24	24	12

Master of Technology in Industrial Engineering Department of Mechanical Engineering

The overall credits structure

Cate	gory	PC	PE	OE			Total				
Cre	dits	36	12	0			48				
Program	Core							Stroamo	d Electives (MEE) in (Product Life Cycle	lan	lanad
		Project Part-I		0	0	24	12	CTL729	Automotive Reliability and Life Testing		3 (
		Project Part-II		0	0		12	CTL729 CTL732	Advanced Vehicle Propulsion	-	3 (
		al Engineering S	watama	1	0	24 4	3		Value Engineering and Life Cycle Costing	· · ·	3 (
		ons Planning and		3	0	0	3		Reliability Engineering		3 (
		lity and Statistic		3	0	0	3		Quality Systems		3 (
		ons Research	0	3	Ő	õ	3	MSL841	Supply Chain Analytics		3 (
	Total C			-	-	-	36	ITL709	Maintenance Planning and Control	3	3 (
	TOLAT	reuns					30	ITL711	Reliability, Availability and Maintainability	3	3 (
Streame	d Electiv	es (MEE) in (Ar	nalytics and Op	timizati	on)				(RAM) Engineering		
		tive Reliability a		3	0	0	3	ITL702	Diagnostic Maintenance and Condition	3	3 (
		ed Vehicle Prop	•	3	0	0	3		Monitoring		
		cturing Informati		3	0	2	4	Streamo	d Electives (MEE) in (Operations Manage	mor	mont)
	Optimiz	•		3	0	0	3				
	•	tic Modeling and	d Simulation	3	0	0	3		Automotive Reliability and Life Testing Advanced Vehicle Propulsion		3 (
		ed Operations R		3	0	0	3		Network Models for Public Systems		3 (
COL702	Advance	ed Data Structur	res	3	0	2	4		Service System Design	-	3 (
COL770	Advance	ed Artificial Intell	ligence	3	0	2	4		Supply Chain Management		3 (
COL772	Natural	Language Proce	essing	3	0	2	4	MCL757	Logistics	-	3 (
	or		-					MCL759	0	-	3 (
MTL785	Natural	Language Proce	essing	3	0	0	3		Project Management	3	3 (
COL774	Machine	e Learning		3	0	2	4		Special Topics in IE	3	3 (
	or								Maintenance management	3	3 (
ELL784	Introduc	tion to Machine	Learning	3	0	2	4	CVL746	Public Transportation Systems	3	3 (
ELL791			arning Machines		0	0	3	CVL750	Intelligent Transportation Systems	3	3 (
MSL713		tion Systems Ma	•	3	0	0	3		Services Operations Management		3 (
MSL717	Busines	s Systems Anal	lysis & Design	3	0	0	3		Science & Technology Policy Systems	-	3 (
MTL763		tion to Game Th		3	0	0	3		Electronic Government		1.5 (

Sem.			Courses		Lecture courses	c	Contact	: h/wee	ek	Credits
		(Number, A	Abbreviated Title,	, L-T-P, Credits)	Cor	L	Т	Р	Total	ð
I	MCL761 Probability and Statistics (3-0-0) 3	MCL765 Operations Research (3-0-0) 3	MCL751 Industrial Engineering Systems (1-0-4) 3	PE-1 (from PLM Stream) (3-0-0) 3	4	10	0	4	14	12
п	MCL754 Operations Planning and Control (3-0-0) 3	PE-2 (3-0-0) 3	PE-3 (3-0-0) 3	PE-4 (3-0-0) 3	4	12	0	0	12	12
		•	Professional	Project Activity In Summer Vacation						
III	MCD861 Major Porject Part-I (0-0-24) 12				1	3	0	24	27	15
IV	MCD862 Major Porject Part-II (0-0-24) 12				0	0	0	24	24	12

Master of Technology in Mechanical Design Department of Mechanical Engineering

The overall credits structure

Cate	gory	PC	PE	OE			Total					
Cre	dits	32	22	0			54					
Program	Core							MCL716	Mechatronics Product Design	Mechatronics Product Design 2	Mechatronics Product Design 2 0	Mechatronics Product Design 2 0 2
APL701	Continu	um Mechanics		3	0	0	3	MCL717	Machine Tool Design	5		
MCD831	Major Pi	roject Part-I		0	0	12	6		Design for Manufacture and Assembly	а ў	o ,	÷ ,
		oject Part-II		0	0	24	12	MCL723	Vehicle Dynamics	Vehicle Dynamics 2	,	5
MCL731	Analytic	al Dynamics		3	0	0	3	MCL728	Nanotribology			
MCL735	CAD an	d Finite Element	Analysis	3	0	2	4	MCL729	Nanomechanics			
MCL742	Design a	& Optimization	-	3	0	2	4	MCL737	Biomechanics of Trauma and Automotive Design	Biomechanics of Trauma and Automotive Design 3		5
	Total Ci	redits					32		Dynamics of Multibody Systems			
								MCL740	Lubrication	Lubrication 3		
Streame	d Electiv	es MEM - (A1) (a	atleast 12 credit	ts)				MCL743	Plant Equipment Design	Plant Equipment Design 3		
		ng with advanced		, 3	0	2	4		Design of Precision Machines			
		and Noise	materials	3	-	2	-	MCL797	Freedom and Constraints in Design	Freedom and Constraints in Design 3	Freedom and Constraints in Design 3 0	Freedom and Constraints in Design 3 0 0
		tive Design		3	0	2		MCL798	Medical Robotics	Medical Robotics 2	Medical Robotics 2 0	Medical Robotics 2 0 2
		Engineering		3	0	2		MCL834	Vibroacoustics	Vibroacoustics 2	Vibroacoustics 2 0	Vibroacoustics 2 0 2
MCL745		0 0		3	0	_	-	MCL837	Advanced Mechanisms	Advanced Mechanisms 2	Advanced Mechanisms 2 0	Advanced Mechanisms 2 0 2
		ical Systems Des	sian	3	0	2		MCL839	Rotor Dynamics	Rotor Dynamics 2	Rotor Dynamics 2 0	Rotor Dynamics 2 0 2
	0		atleast 10 credit	ts)	2	_	-	MCL840	Experimental Modal Analysis and Dynamic Design			
MCL711	Fracture	Mechanics in D	esign	2	0	2	3	MCL845	Advanced Robotics	Advanced Robotics 2	Advanced Robotics 2 0	Advanced Robotics 2 0 2
		ring Acoustics	-	3	0	0	3	MCL848	Special topics in Systems Design-I	Special topics in Systems Design-I 2	Special topics in Systems Design-I 2 0	Special topics in Systems Design-I 2 0 0
	•	loise Control		3	0	0	3	MCL849	Special topics in Systems Design-II	Special topics in Systems Design-II 3	Special topics in Systems Design-II 3 0	Special topics in Systems Design-II 3 0 0
MCL714	Orthoped	dic Biomechanics	and Implant Desig	gn 2	0	2	3		Independent Study			
	•		on and Harshnes		0	2	3		Special Module in Systems Design			· · · · · · · · · · · · · · · · · · ·

Sem.			Courses			Lecture courses	C	Contact	h/wee	ek	Credits
		(Number, I	Abbreviated Title	, L-I-P, Credits)		Col	L	Т	Р	Total	ð
I	APL701 Continuum Mechanics (3-0-0) 3	MCL731 Analytical Dynamics (3-0-0) 3	MCL735 CAD and Finite Element Analysis (3-0-2) 4	MCL742 Design & Optimization (3-0-2) 4		4	12	0	4	16	14
II	PE-1 (3-0-2) 4	PE-2 (3-0-2) 4	PE-3 (3-0-2) 4	PE-4 (3-0-0) 3		4	12	0	6	18	15
Summe	r	1			I.	1					
III	MCD831 Major Project Part-I (0-0-12) 6	PE-5 (3-0-2) 4	PE-6 (3-0-0) 3			2	6	0	14	0	13
IV	MCD832 Major Project Part-II (0-0-24) 12					0	0	0	24	24	12

Total = 54

1 0 4 3 3 0 2 4

3 0 0 3 3 0 0 3

3 0 0 3

3 0 2 4

3 0 2 4 3 0 2 4

3 0 2 4

3 0 0 3

3 0 2 4 3 0 2 4

2 0 2 3

3 0 2 4 3 0 2 4

2 0 4 4

Master of Technology in Production Engineering

Department of Mechanical Engineering

The overall credits structure

Category	PC	PE	OE			Total		
Credits	31	18	0			49		
Program Core								Industrial Engineering Systems
MCD881 Major P	roject Part-I		0	0	12	26		Manufacturing Informatics
MCL705 Experim	iental Methods		3	0	2	4		Operations Planning and Control
MCL769 Metal F	orming Analysis		3	0	2	4	MCL773	Quality Systems
MCL781 Machini	ng Processes ar	nd Analysis	3	0	2	4	MCL776	Advances in Metal Forming
MCL782 Comput	ational Methods		2	0	0	2	MCL777	Machine Tool Design
MCL784 Comput	er Aided Manufa	acturing	3	0	2	4	MCL778	Design and Metallurgy of Welded Joints
MCL786 Metrolog	ду		2	0	2	3	MCL780	Casting Technology
MCL787 Welding	Science and Te	chnology	3	0	2	4	MCL783	Automation in Manufacturing
Total C	redits					31		Advanced Machining Processes Surface Engineering
Program Elective	S						MCL791	Processing and Mechanics of Composite
MCD882 Major P	roject Part-II		0	0	24	12		Materials
MCL718 Design	,	and Assembly	2	0	2	3	MCL792	Injection Molding and Mold Design
MCL729 Nanome	echanics	,	3	0	0	3	MCL795	Laser Processing of Materials
MCL749 Mechati	ronics Product D	esign	3	0	2	4	MCL796	Additive Manufacturing
MCL750 Product		0	1	0	4	3	MCP790	Process Engineering

Sem.				Lecture courses	С	ontact	k	Credits					
		(Number, A	Abbreviated Title,	L-T-P, Credits)				Lec cou	L	Т	Р	Total	S.
I	MCL781 Machining Processes and Analysis (3-0-2) 4	MCL787 Welding Science and Technology (3-0-2) 4					3	9	0	6	15	12	
II	MCL705 Experimental Methods (3-0-2) 4	MCL782 Computational Methods (2-0-0) 3				4	10	0	6	16	13		
	·		Professional	Project Activity In	Summe	r Vacatio	n						
ш	MCD881 Major Project Part-I (Core) (0-0-12) 6	CD881 PE-1 PE-2 ,jor Project (3-0-0) 3 (3-0-0) 3 tt-I (Core) (3-0-0) 3 (3-0-0) 3						2	6	0	12	18	12
IV	MCD882 Major Project Part-II (PE) (0-0-24) 12							0	0	0	24	24	12

Master of Technology in Thermal Engineering

Department of Mechanical Engineering

The overall credits structure

Category PC PE			0	E		1	Total						
Cre	dits	36	12	3	3			51					
Non-grac	led Core								MCL811	Advanced Power Generation Systems	Advanced Power Generation Systems 3	Advanced Power Generation Systems 3 0	Advanced Power Generation Systems 3 0 0
MCD800	Professi	onal Project Act	tivity		0	0	6	3	MCL812	Combustion	Combustion 3	Combustion 3 0	Combustion 3 0 0
Program	Core	-							MCL813	Computational Heat Transfer	Computational Heat Transfer 3	Computational Heat Transfer 3 0	Computational Heat Transfer 3 0 2
		aiaat Dant I (Th			0	0	10		MCL814	Convective Heat Transfer	Convective Heat Transfer 3	Convective Heat Transfer 3 0	Convective Heat Transfer 3 0 0
		oject Part-I (The oject Part-II (Th	•	0,	0	0	16 i 24		MCL815	Fire Dynamics and Engineering	Fire Dynamics and Engineering 2	Fire Dynamics and Engineering 2 0	Fire Dynamics and Engineering 2 0 4
	,	d Thermodynar	0	enng)	3	0		12 3	MCL816	Gas Dynamics	Gas Dynamics 3	Gas Dynamics 3 0	Gas Dynamics 3 0 2
		ed Fluid Mechar			3	Ŭ	•	3	MCL817	Heat Exchangers	Heat Exchangers 3	Heat Exchangers 3 0	Heat Exchangers 3 0 0
MCL703	Advance	d Heat and Ma	ss Transfer		3	0	0	3	MCL818	Heating, Ventilating and Air-conditioning	Heating, Ventilating and Air-conditioning 3	Heating, Ventilating and Air-conditioning 3 0	Heating, Ventilating and Air-conditioning 3 0 2
MCL704	Applied I	Mathematics for	r Thermofluids	S	3	0	0	3	MCL819	Lattice Boltzmann method	Lattice Boltzmann method 3	Lattice Boltzmann method 3 0	Lattice Boltzmann method 3 0 0
MCL705	Experim	ental Methods			3	0	2 4	4	MCL820	Micro/nano Scale Heat Transfer	Micro/nano Scale Heat Transfer 3	Micro/nano Scale Heat Transfer 3 0	Micro/nano Scale Heat Transfer 3 0 2
	Total Cr	redits						36	MCL821	Radiative Heat Transfer	Radiative Heat Transfer 3	Radiative Heat Transfer 3 0	
									MCL822	Steam and Gas Turbines	Steam and Gas Turbines 3	Steam and Gas Turbines 3 0	Steam and Gas Turbines 3 0 2
Program	Elective	S							MCL823	Thermal Design	Thermal Design 3	Thermal Design 3 0	Thermal Design 3 0 2
MCL707	Thermal	Turbomachines	S		3	0	0	3		Turbocompressors			
MCL732	Air Pollu	tion: Sources a	nd Apportionn	nent	3	0	0	3	MCL825	Design of Wind Power Farms	Design of Wind Power Farms 3	Design of Wind Power Farms 3 0	Design of Wind Power Farms 3 0 2

Sem.			Courses		Lecture courses		<	Credits		
Sem.	(N	lumber, Abbi	reviated Title, L-T-	-P, Credits)	Led	L	т	Р	Total	Cre
I	MCL701 Adv. Thermodynamics (3-0-0) 3	MCL702 Adv. Fluid Mechanics (3-0-0) 3	MCL703 Adv. Heat & Mass Transfer (3-0-0) 3	MCL704 Applied Math. (3-0-0) 3	4	12	0	0	12	12
II	MCL705 Exptl Methods (3-0-2) 4	PE-1 (3-0-0) 3	PE-2 (3-0-0) 3	PE-3 (3-0-0) 3	4	12	0	2	14	13
Summer	Professional Project A	ctivity (compu	Ilsory audit)	· · ·	0					0
III	MED811 Major Project Part-I (MET) (0-0-16) 8	PE-4 (3-0-0) 3	OE-1 (3-0-0) 3		2	6	0	12	18	14
IV	MED812 Major Project Part-II (MET) (0-0-24) 12				0	0	0	24	24	12

Master of Technology in Applied Optics Department of Physics

The overall credits structure

Category	PC	PE	OE	Total	
Credits	39	9	3	51	
Program Core					PY
PYD851 Major Pro	oject Part-I		0 0	12 6	PY

PYD852	Major Project Part-II	0	0	24	12			
PYL751	Optical Sources, Photometry and Metrology	3	0	0	3			
PYL752	Laser Systems and Applications	3	0	0	3			
PYL753	Optical Systems Design	3	0	0	3			
PYL755	Basic Optics and Optical Instrumentation	3	0	0	3			
PYL756	Fourier Optics and Holography	3	0	0	3			
PYP761	Optical Fabrication and Metrology Laboratory	0	0	6	3			
PYP762	Advanced Optics Laboratory	0	0	6	3			
	Total Credits				39			
Program	Program Electives							
PYL757	Statistical and Quantum Optics	3	0	0	3			
	Advanced Quantum Ontice and Applications	2	Δ	0	2			

FILIDI		5	U	U	5	
PYL758	Advanced Quantum Optics and Applications	3	0	0	3	
PYL759	Computational Optical Imaging	3	0	0	3	
PYL760	Biomedical Optics and Bio-photonics	3	0	0	3	

PYL770	Ultra-fast Optics and Applications	3	0	0	3
PYL771	Green Photonics	3	0	0	3
PYL772	Plasmonic Sensors	3	0	0	3
PYL780	Diffractive and Micro Optics	3	0	0	3
PYL791	Fiber Optics	3	0	0	3
PYL792	Optical Electronics	3	0	0	3
PYL795	Optics and Lasers	3	0	0	3
PYL858	Advanced Holographic Techniques	3	0	0	3
PYL879	Selected Topics in Applied Optics	3	0	0	3
PYL881	Selected Topics – I	1	0	0	1
PYL882	Selected Topics – II	1	0	0	1
PYL883	Minor Project	0	0	6	3
PYL892	Guided Wave Photonic Sensors	3	0	0	3
PYP763	Computational Optics Laboratory	0	0	6	3
PYP764	Advanced Optical Workshop	0	0	6	3
PYS855	Independent Study	0	3	0	3
PYL747	Non-linear Optics	3	0	0	3
PYL774	Polarised Light and its Application	3	0	0	3

Sem.		Courses (Number, Abbreviated Title, L-T-P, Credits)									reek	Credits
		(Numb	er, Abbreviated Tit	le, L-T-P, Credits)			Lecture courses	L	Т	Р	Total	Ŭ
I	PYL755 Basic Optics and Optical Instrumentation (3-0-0) 3	PYL751 Optical Sources, Photometry and Metrology (3-0-0) 3	PYL753 Optical Systems Design (3-0-0) 3	PYP761 Optical Fabrication and Metrology Laboratory (0-0-6) 3	PE-1 (3-0-0) 3		4	12	0	6	18	15
Ш	PYL752 Laser Systems and Application (3-0-0) 3	PYL756 Fourier Optics and Holography (3-0-0) 3	PYP762 Advanced Optics Laboratory (0-0-6) 3	PE-2 (3-0-0) 3	PE-3 (3-0-0) 3		4	12	0	6	18	15
Summer												
III	OE-1 (3-0-0) 3	PYD851 Maj. Proj. Part-I (0-0-12) 6					1	3	0	12	15	9
IV	PYD852 Maj. Proj. Part-II (0-0-24) 12					0	0	0	24	24	12	

Master of Technology in Solid State Materials Department of Physics

The overall credits structure

Category	PC	PE	OE	Total
Credits	39	9	3	51

Program	Core					Program	Electives				
PYD801	Major Project Part-I	0	0	12	26	PYL707	Characterization Techniques for Materials	3	0	0	3
PYD802	Major Project Part-II	0	0	24	112	PYL723	Vacuum Science and Cryogenics	3	0	0	3
PYL701	Physical Foundations of Materials Science	3	0	0	3	PYL724	Advances in Spintronics	3	0	0	3
PYL702	Physics of Semiconductor Devices	3	0	0	3		Surface Physics and Analysis	3	0	0	3
PYL703	Electronic Properties of Materials	3	0	0	3	PYL726	Semiconductor Device Technology	3	0	0	3
PYL704	Science and Technology of Thin Films	3	0	0	3	PYL727	Energy Materials and Devices	3	0	0	3
PYL705	Nanostructured Materials	3	0	0	3	PYL728	Quantum Heterostructures	2	0	0	2
PYP701	Solid State Materials Laboratory-I	0	0	6	3	PYL729	Nanoprobe Techniques	1	0	0	1
PYP702	YP702 Solid State Materials Laboratory-II		0	6	3	PYL750	Topology in Condensed Matter Physics	-	-	-	3
	Total Credits				39	PYV759	Selected Topics in Solid State Materials	1	0	0	1

Sem.			Course			Lecture courses	Co	Credits			
Jenn.		(Numb	er, Abbreviated T	itle, L-T-P, Credits	5)	Lec	L	Т	Р	Total	Cre
I	PYL701 Physical Foundations of Materials Science (3-0-0) 3	PYL702 Physics of Semiconductor Devices (3-0-0) 3	PYL703 Electronic Properties of Materials (3-0-0) 3	PYP701 Solid State Materials Laboratory-I (0-0-6) 3	PE-1 (3-0-0) 3	4	12	0	6	18	15
Ш	PYL704 Science and Technology of Thin Films (3-0-0) 3	PYL705 Nanostructured Materials (3-0-0) 3	PYP702 Solid State Materials Laboratory-II (0-0-6) 3	PE-2 (3-0-0) 3	PE-3 (3-0-0) 3	4	12	0	6	18	15
Summer											
ш	OE-1 (3-0-0) 3	PYD801 Maj. Proj. Part-I (0-0-12) 6				1	3	0	12	15	9
IV	PYD802 Maj. Proj. Part-II + Report (0-0-24) 12					0	0	0	24	24	12

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Master of Technology in Textile Engineering Department of Textile and Fibre Engineering

The overall credits structure

Cate	gory	PC	PE	OE			Total					
Cre	dits	42	12	0			54					
Program	Core							TXL751	Apparel Engineering and Quality Control	2	0	2
TXD801	Maior Pr	oject Part-I (TXI	E)	C	0	12	26	TXL752	Design of Functional Clothing	3	0	0
TXD803		oject Part-II (TX	,	C	0	24	12	TXL766	Design and Manuf. of Textile Structural	3	0	0
TXL721		of Yarn Structure	,	3	0	0	3		Composites			
TXL722	·····				0	0	3	TXL771	Electronics and Controls for Textile Industry	3	0	2
TXL725	XL725 Mechanics of Spinning Machines				0	0	3	TXL772	Computational Methods for Textiles	2	0	2
TXL731	731 Theory of Fabric Structure					0	3	TXL773	Medical Textiles	3	0	0
TXL732	Advanced Fabric Manufacturing Systems					0	3	TXL774	Process Control in Yarn & Fabric Manufacturing	3	0	0
TXL775	5 Technical Textiles					0	-	TXL777	Product Design and Development	3	0	0
TXL783		Experiments and			-			TXL780	Principles of Characterization of	3	0	0
TXP725		cs of Textile Ma		,	-				Functional and Technical Textiles			
TXP761	Evaluation	on of Textile Mat	terials	C	0	4	2	TXL781	Project Appraisal and Finance	3	0	0
	Total Cr	redits					42	TXL782	Production and Operations Management in	3	0	0
Program	Elective	s							Textile Industry			
TXD809		ject (Textile Eng	incoring)	C	0	8	4	TXL784	,	3	0	0
TXL700		and Simulation i		-	-	-	4 3	TXL785	Heat and Mass Transport in Fibrous Materials	3	0	0
TXL700		formance and S			•	_	3	TXL786	Technology of Textile Coating and Lamination	2	0	2
TXL712	•				-	-	3	TXL807	Seminar (Textile Engineering)	0	2	0
TXL719	- , ,			3	0	-	3	TXS805	Independent Study (Textile Engineering)	0	3	0
TXL724	Textured	Yarn Technolog	AN AN	3	0	0	3	TXV702	Management of Textile Business	1	0	0
TXL734		en Processes a		3	0	0	3	TXV703	Special Module in Textile Product Mgmt.	1	0	0
TXL740	XL740 Science & App. of Nanotechnology in Textile		extiles 3	0	0	3	TXV704	Special Module in Yarn Manufacture	1	0	0	
TXL750					0	0	3	TXV705	Special Module in Fabric Manufacture	1	0	0

Sem.				Courses			Lecture courses	0	Conta	ict h/v	veek	Credits
Jenn.		(Number, Abbrevi	ated Title, L-T-P,	Credits)		Lec	L	Т	Р	Total	Cre
I	TXL721 Theory of Yarn Structure (3-0-0) 3	TXL722 Mechanics of Spinning Processes (3-0-0) 3	TXL731 Theory of Fabric Structure (3-0-0) 3	TXL732 Advanced Fabric Manufacturing Systems (3-0-0) 3		PE-1 (3-0-0) 3	5	15	0	0	15	15
Ш	TXL775 Technical Textiles (3-0-0) 3	TXL725 Mechanics of Spinning Machines (3-0-0) 3	TXL783 Design of Expt. and Stat. Tech. (3-0-0) 3	TXP761 Evaluation of Textile Materials (0-0-4) 2	TXP725 Mechanics of Spinning Machines Lab. (0-0-2) 1	PE-2 (3-0-0) 3	4	12	0	6	18	15
Summer												
III	TXD801 Major Project Part-I (TXE) (0-0-12) 6	PE-3 (3-0-0) 3	PE-4 (3-0-0) 3				2	6	0	12	18	12
IV	TXD803 Major Project Part-II (TXE) (0-0-24) 12						0	0	0	24	24	12

Master of Technology in Textile Chemical Processing

Department of Textile and Fibre Engineering

The overall credits structure

Cate	egory	PC	PE	OE			Total						
Cre	dits	42	12	0			54						
_													
Program	Core							TXL724		3	-	0	-
TXD805	Major Pr	oject Part-I (TX	C)	0		12		TXL740	Science and Application of Nanotechnology	3	0	0	3
TXD806	Major Pr	oject Part-II (TX	(C)	0	0		112		in Textiles	~	~	~	~
TXL712		and Fibre Phys	ics	3	0		3	TXL750	Science of Clothing Comfort	3	0	0	-
TXL747	Colour S	cience		3	0	-	3	TXL751		2	0	2	
TXL748	Advance	s in Finishing o	f Textiles	3	0		3	TXL752	- J J	3	0	0	
TXL749	Theory a	and Practice of I	Dyeing	3	0	0	3	TXL755	Textile Wet Processing Machines:	3	0	0	3
TXL753	Advance	d Textile Printin	g Technology	2	0	0	2		Automation and Control*				~
TXL754	Sustaina	ble Chemical Pi	ocessing of Text	iles 2	0	0	2	TXL756		3		0	
TXL783	Design c Techniau	of Experiments a	and Statistical	3	0	0	3	TXL766	Design and Manuf. of Textile Structural Composites	3	0	0	3
TXP748		reparation and	Finishing Lab	0	0	2	1	TXL773	Medical Textiles	3	0	0	3
TXP749		oloration Lab		0	0		1	TXL775	Technical Textiles	3	0	0	3
TXP751			aluation of Dyed	1 0	0	2		TXL777	Product Design and Development	3	0	0	3
174 101		shed Textiles La	,	· ·	Ũ	-	•	TXL780	Principles of Characterization of	3	0	0	3
TXS751		h Seminar	~	0	0	2	1		Functional and Technical Textiles				
TXR752		onal Practices		0		2		TXL781	Project Appraisal and Finance	2	1	0	
TXT800		I Summer Train	ina	N	oni	cre	dit	TXL782	Production and Operations Management	3	0	0	3
	Total Cr				•	0.0	42		in Textile Industry				
	Total Cr	eans					42	TXL784	Supply Chain Mgmt. in Textile Industry	3	0	0	-
Program	Elective	e						TXL785	Heat and Mass Transport in Fibrous Materials	3		0	
						_		TXL786	Technology of Textile Coating and Lamination	2	-	2	-
MSL760		g Management			0			TXP711	- , , ,	0	_	0	-
			ual Property Rig		0			TXP712	Polymer and Fibre Physics Laboratory	0	0	2	1
MSL816		ality Manageme	ent	2	0		3	TXP716	Fibre Production and Post Spinning	0	0	4	2
TXD812		jects (TCP)		0	0	6	3		Operation Laboratory				
TXL711		and Fibre Cher		3		-		TXP761	Evaluation of Textile Materials	0	0	4	2
TXL713		ogy of Melt Spur		3	1	-	4	TXS811	Independent Study	0	3	0	3
TXL714		d Materials Cha	aracterization	1	0	0	1	TXV703	Special Module in Textile Product Mgmt.	1	0	0	1
	Techniqu			-	~	~		TXV707	Special Module-Textile Chemical Processing-1	1	0	0	1
TXL715		ogy of Solution		3	0	0	3	* 700 -					
TXL719	Function	al and Smart Te	extiles	3	0	0	3	* TCP PE	= Basket				

Sem.				Courses				Lecture courses	С	onta	ct h/v	veek	Credits
Scill.			(Number, Abb	previated Title,	, L-T-P, cred	its)		Lec	L	Т	Р	Total	2 U
I	TXL712 Polymer & Fibre Physics (3-0-0) 3	TXL747 Colour Science (3-0-0) 3	TXL749 Theory and Practice of Dyeing (3-0-0) 3	TXL753 Advanced Textile Printing Technology (2-0-0) 2	TXP749 Textile Coloration Lab (0-0-2) 1	TXP751 Characterization of Chemicals and Finished Textiles Lab (0-0-2) 1	TXR752 Professional Practices (0-0-2) 1	4	11	0	6	17	14
II	TXL748 Advances in Finishing of Textiles (3-0-0) 3	TXL754 Sustainable Chemical Processing of Textiles (2-0-0) 2	TXL783 Design of Experiments and Statistical Techniques (3-0-0) 3	TXP748 Textile Preparation and Finishing Lab (0-0-2) 1		PE-1 (3-0-0) 3	PE-2 (3-0-3) 3	5	14	0	2	16	15
Summer	TXT800 Ind	ustrial Sumn	ner Training										
ш	TXD805 Major Project Part-I (TCP) (0-0-12) 6			TXS751 Research Seminar (0-0-2) 1	PE-3* (3-0-0) 3	PE-4 (3-0-0) 3		2	6	0	14	18	13
IV	TXD806 Major Project Part-II (TCP) (0-0-24) 12							0	0	0	24	24	12

* From TCP PE Basket

Master of Technology in Fibre Science and Technology

Department of Textile and Fibre Engineering

The overall credits structure

Cate	gory	PC	PE	OE				Total				
Cre	dits	42	12	0				54				
Program	Core								TXL741	Env. Manag. in Textile and Allied Industries	3	
TXD802	Major Pr	roject Part-I			0	0	12	6	TXL747	Colour Science	3	
TXD804	Major Pr	oject Part-II			0	0	24	12	TXL750	Science of Clothing Comfort	3	
TXL711	Polymer	and Fibre Chen	nistry		3	0	0	3	TXL752	Design of Functional Clothing	3	
TXL712	Polymer	and Fibre Phys	ics		3	0	0	3	TXL754	Sustainable Chemical Processing of Textiles		
TXL713	Technolo	ogy of Melt Spur	n Fibres		3	1	0	4	TXL772	Computational Methods for Textiles	2	
TXL714	Advance	d Materials Chara	cterization Tech	nniques	1	0	0	1	TXL773	Medical Textiles	3	
TXL715	Technolo	ogy of Solution S	Spun Fibres		3	0	0	3	TXL775	Technical Textiles	3	
TXL748	Advance	es in Finishing of	f Textiles		3	0	0	3	TXL777	Product Design and Development	3	
TXL749	Theory a	and Practice of [Dyeing		3	0	0	3	TXL780	Principles of Characterization of	3	
TXP711		and Fibre Chen		ory	0	0	2	1		Functional and Technical Textiles		
TXP712	Polymer	and Fibre Phys	ics Laboratory	, -	0	0	2	1	TXL781	Project Appraisal and Finance	3	
TXP716	Fibre Pro	oduction and Pos	st Spinning		0	0	4	2	TXL782	Production and Operations Management in	3	
	Operatio	n Laboratory								Textile Industry		
	Total Cr	redits						42	TXL783	Design of Experiments and Statistical Techniques		
	10101 01	cuito						72	TXL784	Supply Chain Management in Textile Industry		
Drogrom	Elective	_							TXL785	Heat and Mass Transport in Fibrous Materials	3	
Program					_				TXL786	Technology of Textile Coating and Lamination		
TXL700		g and Simulation i			_	0	2		TXS806	Independent Study (TTF)	0	
TXL710	•	rformance and S			-	-	-	3	TXV701	Process Cont. and Econ. in Manmade Fibre Prod.	1	
TXL719		al & Smart Text			3	0	-	3	TXV702	Management of Textile Business	1	
TXL724		Yarn Technolog			3	0	-	3	TXV703	Special Module in Textile Product Mgmt.	1	
TXL734		en Processes a			3	0	-	3	TXV706	Special Module in Fibre Science	1	
TXL740	Science	& App. of Nanote	echnology in Te	extiles	3	0	0	3	TXV707	Special Module in Textile Chemical Processing	1	

Sem.				Courses				Lecture courses	Co	ontac	t h/w	eek	Credits
beim		(N	umber, Abbrev	iated Title, L-T-P,	Credits)			Lec	L	т	Ρ	Total	S
I	TXL711 Polymer & Chemistry (3-0-0) 3	TXP711 Polymer & Fibre Chemistry Lab (0-0-2) 1	TXL712 Polymer & Fibre Physics (3-0-0) 3	TXP712 Polymer & Fibre Physics Lab (0-0-2) 1	TXL713 Technology of Melt Spun Fibres (3-1-0) 4	TXL749 Theory and Practice of Dyeing (3-0-0) 3		4	12	1	4	17	15
п	TXL715 Technology of Soln Spun Fibres (3-0-0) 3	TXP716 Fibre Production & Post Spinning Operation Lab (0-0-4) 2	TXL748 Advances in Finishing of Textiles (3-0-0) 3	TXL714 Characterization of advanced materials (1-0-0) 1		PE-2 (3-0-0) 3	PE-1 (3-0-0) 3	5	12	0	6	18	15
Summer													
ш	TXD802 Maj. Proj. Part-I (TTF) (0-0-12) 6				PE-3 (3-0-0) 3	PE-4 (3-0-0) 3		2	6	0	12	18	12
IV	TXD804 Maj. Proj. Part-II (TTF) (0-0-24) 12							0	0	0	24	24	12

Programme Code: CRF

Master of Technology in Radio Frequency Design and Technology Centre for Applied Research and Electronics

The overall credits structure

	Core Core Cotegory PC BC F				ctiv	e			Total					
Cat	tegory	PC	BC	PE		C)E		Total		1			
Cr	edits	24	3	24*/21**	()*/	3*	*	51					
	CategoryPCBCPEOETotalCredits24324*/21**0*/3**51students with M. Tech Dissertation ram Corestudents without M. Tech Dissertation ram Core063802Minor Project0063802Minor Project-I00126702Architectures and Algorithms for DSP Systems2044711CAD of RF and Microwave Circuits3024CRL704714CAD of RF and Microwave Measurements3003CRL707Human & Machine Speech Communication718RF and Microwave Measurement Lab1064CRL707Selected Topics in Radars and Sonars3718RF and Microwave Measurement Lab1064CRL712RF and Microwave Solid State Devices3701Basics of Statistical Signal Analysis2023CRL722RF and Microwave Solid State Devices3711Signal Theory3003CRL723Selected Topics in RFDT-I3711Signal Theory3003CRL724RF and Microwave Solid State Devices3711Signal Theory3003CRL725Selected Topics in RFDT-I372Digital Communications3003CRL734Selected Topics in RFDT-II372Digital Commu													
	CategoryPCBCPEOETotalCredits24324*/21**0*/3**51students with M. Tech Dissertation students without M. Tech Dissertationarm Core302 Minor Project0063302 Minor Project0012.6CRD802302 Minor Project0012.6CRD812302 Architectures and Algorithms for DSP Systems2044311 Major Project-ICAD of RF and Microwave Circuits3024312 RF and Microwave Measurements3003CRL706313 RF and Microwave Measurement Lab1064CRL708314 Basics of Statistical Signal Analysis2023CRL712321 Fundamentals of Semiconductor Devices3003CRL722321 Fundamentals of Semiconductor Devices3003CRL723321 Signal Theory3003CRL723Selected Topics in RFDT-II331 Signal Theory3003CRL733Selected Topics in RFDT-II34 Basical Signal Processing3003CRL734Selected Topics in RFDT-II35 Analog Integrated Circuits3003CRL734Selected Topics in RFDT-II35 Analog Integrated Circuits3003CRL734Selected Topics in RFDT-III36 Advanced Digital Signal Processing3 <td>Wireless Communication Laboratory 0 1</td>		Wireless Communication Laboratory 0 1											
		viact			Δ	Δ	6	3						
			orithms for	~										
,NL102					2	0	4	4						
DI 711			wave Circ	suite	З	Λ	2	1						
								-	CRL707	ł	Human & Machine Speech Communication	Human & Machine Speech Communication 3	Human & Machine Speech Communication 3 0	Human & Machine Speech Communication 3 0 (
								-	CRL708	ξ	Sonar Systems Engineering	Sonar Systems Engineering 3	Sonar Systems Engineering 3 0	Sonar Systems Engineering 3 0 (
/11/10			louburonne			0	0	-	CRL709	ι	Jnderwater Electronic Systems	Underwater Electronic Systems 3	Underwater Electronic Systems 3 0	Underwater Electronic Systems 3 0 (
	Total Cre	edits						24	CRL712		RF and Microwave Active Circuits	RF and Microwave Active Circuits 3	RF and Microwave Active Circuits 3 0	RF and Microwave Active Circuits 3 0 (
ridge (Course (Co	ore)							CRL715		Radiating Systems for RF Communication	Radiating Systems for RF Communication 3	Radiating Systems for RF Communication 3 0	Radiating Systems for RF Communication 3 0 (
-			Signal Ana	lvsis	2	0	2	3	CRL722		RF and Microwave Solid State Devices	RF and Microwave Solid State Devices 3	RF and Microwave Solid State Devices 3 0	RF and Microwave Solid State Devices 3 0 (
				19313					CRL725	•	Technology of RF and Microwave	Technology of RF and Microwave 3	Technology of RF and Microwave 3 0	Technology of RF and Microwave 3 0 (
				or Devices	_	-	-	•			Solid State Devices	Solid State Devices	Solid State Devices	Solid State Devices
			moonduot	Devideo	0	0	0	U	CRL726					
rogram	n Electives								···-·					
ELL711	Signal Th	eory			3	0	0	3						
ELL712	Digital Co	ommunicatio	ons		3	0	0	3						
ELL714	Basic Info	ormation The	eory		3	0	0	3						
ELL718	Statistica	I Signal Pro	cessing		3	0	0	3						
ELL719	Detection	and Estima	ation Theo	ry	3	0	0	3					•	
ELL720	Advanced	d Digital Sig	nal Proces	ssing	3	0	0	3	CRP723					
LL725	Wireless	Communica	ations	-	3	0	0	3						
LL731	Mixed Sig	gnal Circuit I	Design		3	0	0	3				······································	······································	
LL734	MOS VLS	SI design	-		3	0	0	3						
ELL735	Analog In	tegrated Cir	rcuits				0	3	CRV742					
ELL784	Introducti	on to Machi	ine Learnir	ng	3	0	0	3						
ELL815				าร	-			-	CRV743					
ELL833	CMOS R	F IC Design			3	0	0	3			and Technology-II	and Technology-II	and Technology-II	and Technology-II

Sem.		(Number A	Courses	T.D. (radita)	Lecture courses		Contact	h/week		Credits
		(Number, A	Abbreviated Title, L	-1-P, Credits)	<u></u> <u></u> <u></u> <u></u> <u></u> <u></u>	L	Т	Р	Total	ΰ
I	CRL711 CAD of RF and Microwave Circuits (3-0-2) 4	CRL718 RF and Microwave Measurement Lab (1-0-6) 4	PE-1 (3-0-0) 3	Bridge course : Any one of the following three : CRL601 Basics of Stat. Signal Analysis (2-0-2) 3/ CRL611 Basics of RF and Microwaves (2-1-0) 3/ CRL621 Fund. of Semiconductor Devices (3-0-0) 3	4	9-10	10	8-10	18-19	14
II	CRL724 RF and Microwave Measurements (3-0-0)	CRL702 Architectures and Algorithms for DSP Systems (2-0-4) 4	PE-2 (3-0-0) 3	CRD802 Minor Project (0-0-6) 3	3	8	0	10	18	13
Summer	-									
III	CRD811 Major Project-I (0-0-12)		PE-3 (3-0-0) 3	PE-4 (3-0-0) 3	2	6	0	12	18	12
IV Project Option OR			CRD812 (0-0-24)*		0	0	0	24	24	12
IV Course Option	PE-5 (3-0-0) 3		CRD814 Major Project-III (0-0-12) 6	OE-1 (3-0-0) 3	2	6	0	12	18	12

Note : Minimum eligibility criterion for doing CRD812 (M.Tech. Project 2) in final semester leading to M.Tech. with Dissertation shall be B grade in CRD811. However, additional/higher criteria may be set CFB based on which CRC shall approve/disapprove this option for each student.

Programme Code: AST

Master of Technology in Atmospheric-Oceanic Science and Technology Centre for Atmospheric Sciences

The overall credits structure

Category	PC	PE	OE	Total
Credits	33	21	0	54

Filogram	Core						ASL761	Earth System Modeling	3	0	-	3
ASD881	Project-I	0	0		26		ASL762	Air-Sea Interaction	3	0	-	3
ASL730	Introduction to Weather, Climate and Air Pollution	1	0	0	1		ASL763	Coastal Ocean and Estuarine Processes	3	0	-	3
ASL732	Mathematical and Computational Methods for Atmospheric and Oceanic Sciences	2	0	2	3	3	ASL765	Impacts of Climate Change and Air Pollution on Human Health		0	0	-
ASL733	Physics of the Atmosphere	3	0	0	3	3	ASL821	Advanced Dynamic Meteorology	3	0	0	-
ASL734	Dynamics of the Atmosphere	3	0	0	3	3	ASL822	Climate Variability	3	0	0	-
ASL735	Atmospheric Chemistry and Air Pollution	3	0	0	3	3	ASL823	Geophysical Fluid Dynamics	3	0	0	-
ASL736	Science of Climate Change	3	0	0	3	3	ASL824	· · · · · · · · · · · · · · · · · · ·	3	0	-	3
ASL737	Physical and Dynamical Oceanography	3	0	0	3	3	ASL826	Ocean Modeling	2	0		3
ASL738	Numerical Modeling of the Atmosphere	2	0	2	3	3	ASL827	Advanced Dynamic Oceanography	3	0	-	3
	and Ocean						ASL851	Special Topics in Climate	3	0	-	3
ASP731	Data Analysis Methods for Atmospheric and	0	0	4	2	2	ASL852	Special Topics in Oceans	3	0	0	-
	Oceanic Sciences						ASL853	Special Topics in Atmosphere	3	0	-	3
ASP820	Advanced Data Analysis for	1	0	4	3	3	ASL854	Special Topics in Air Pollution Studies	3	0	-	3
	Weather and Climate						ASL856	Special Topics in Atmospheric and	2	0	2	3
	Total Credits				3	33		Oceanic Observations				
D	Fleeting						ASP766	Atmospheric Measurements and Analysis	1	0	4	3
Program	Electives							Hands-on			~	~
ASC869	Atmospheric and Oceanic Science Colloquium	0	1	0			ASP825	Mesoscale Modeling	0	0		3
ASD882		0	0	_	41	_	ASP855	Special Topics in Atmosphere and Ocean	1	0	-	3
ASL750	Boundary Layer Meteorology	3	0		3		ASP867	Special Module in Weather Forecasting	0	0		1
ASL751	Dispersion of Air Pollutants	3	0	0	3		ASP868	Special Module in Atmospheric and	0	0	2	1
ASL752	Mesoscale Meteorology	3	0	0	3			Oceanic Observations				
ASL753	Atmospheric Aerosols	3	0	0	3		ASS800	Independent Study	0	3	-	3
ASL754	Cloud Physics	3	0	0	3		ASV862		1	0	•	1
	Remote Sensing of the Atmosphere and Ocean	3	0	0	3		ASV863	Special Module in Oceans	1	0	•	1
	Synoptic Meteorology	3	0	0	3		ASV864	Special Module in Atmosphere	1	0	0	•
ASL756	, i 0,				3	3	ASV865	Special Module in Air Pollution Studies	1	0	0	1
ASL756 ASL757	Tropical Weather and Climate	3	0	0	-			•		-	-	
ASL756 ASL757 ASL758	Tropical Weather and Climate General Circulation of the Atmosphere	3 3	0 0	0	3		ASV866	Special Module in Atmosphere and Ocean	1	0	0	
ASL755 ASL756 ASL757 ASL758 ASL759	Tropical Weather and Climate	-	-		-			Special Module in Atmosphere and Ocean An Introduction to Renewable Energy	1 1	-	-	

Sem.			Courses			Lecture courses	C	Conta	ct h/w	veek	Credits	
Jem.		(Number,	Abbreviated Title	, L-T-P, Credits))		Lect	L	т	Р	Total	Cre
I	ASL730 Introduction to Weather, Climate and Air Pollution (1-0-0) 1	ASP731 Data Analysis Methods for Atmospheric and Oceanic Sciences (0-0-4) 2	ASL732 Mathematical and Computational Methods for Atmospheric and Oceanic Sciences (2-0-2) 3	ASL733 Physics of the Atmosphere (3-0-0) 3	ASL734 Dynamics of the Atmosphere (3-0-0) 3	ASL735 Atmospheric Chemistry and Air Pollution (3-0-0) 3	5	12	0	6	18	15
II	ASL736 Science of Cli- mate Change (3-0-0) 3	ASL737 Physical and Dynamical Oceanography (3-0-0) 3	ASL738 Numerical Modeling of the Atmosphere and Ocean (2-0-2) 3	ASP820 Advanced Data Analysis for Weather and Climate (1-0-4) 3	PE-1 (3-0-0) 3		5	12	0	6	18	15
Summer												
III	ASD881 Project-I (Core) (0-0-12) 6	PE-2 (3-0-0) 3	PE-3 (3-0-0) 3				2	6	0	12	18	12
IV Project Option OR	ASD882 Project-II (0-0-24) 12						0	0	0	24	24	12
IV Course Option	PE-4 (3-0-0) 3	PE-5 (3-0-0) 3	PE-6 (3-0-0) 3	PE-7 (3-0-0) 3			4	12	0	0	12	12

Master of Technology in Electric Mobility

Centre for Automotive Research and Tribology

The overall credits structure

Cate	gory	PC	PE	OE		Total						
Cree	dits	24	18	6		48						
Program	Core						CTL711	Embedded Systems for Automotive Sector	3	0	0	3
CTL703		tion to Electric V	/ehicles	3	0	03	CTL719	Energy Storage Systems for EVs	3	0	0	3
CTL705		ring of Electric V		-	0		CTL720	Vehicle System Dynamics and Control	3	0	0	3
CTL707	0	s for Electric Ver		-	0		CTL725	Recycling, Reusability and Remanufacturing	3	0	0	3
		ciplinary Perspec		Ū	Ũ		CTL727	Materials for Electric Vehicle Applications	3	0	0	3
CTL717		lectronics and D		tric 3	0	03	CTL729	Automotive Reliability and Life Testing	3	0	0	3
	Vehicles						CTL731	Automotive Noise and Condition Monitoring	3	0	0	3
CTP702	Electric	Vehicle Laborato	ory-l	1	0	4 3	CTL732	Advanced Vehicle Propulsion	3	0	0	3
CTP704	Electric '	Vehicle Laborato	ory-II	1	0	4 3	CTL717	Electric Energy Storage Systems	3	0	0	3
CTD 801	M.Tech.	Major Project Pa	art-l	0	0	12 6	CTL735	Computer Aided Analysis of Power Electronics	3	0	0	3
	Total Ci	redits				24	CTL713	Connected and Autonomous Vehicles	3	0	0	3
	10101 01	ouno					CTL736	Design of Motors for Automotive Application	3	0	0	З
Program	Elective	s					CTL741	Advanced Motors for Electric Mobility	3	0	2	4
CTL704	Electrica	I Engineering ar	nd Triboloav	3	0	03	CTD802	M.Tech. Major Project Part-II	0	0	24	4 1:
CTL709		g Infrastructure f	0,	3	0	0 3		Minor Project	0	0	6	3

Sem.		Courses			Lecture courses	C	Conta	ct h/v	veek	Credits
Sem.		(Number, Abbreviated Title,	, L-T-P, Credits)		Lect	L	Т	Р	Total	Cre
I	CTL703 Introduction to Electric Vehicles (3-0-0) 3	CTL705 Engineering of Electric Vehicles (3-0-0) 3	CTP702 Electric Vehicle Laboratory-I (1-0-4) 3	PE-1 (3-0-0) 3	3	10	0	4	14	12
II	CTL707 Batteries for Electric Vehicles: Multidisciplinary Perspectives 3-0-0) 3	CTL717 Power Electronics and Drives for Electric Vehicles (3-0-0) 3	CTP704 Electric Vehicle Laboratory-II (1-0-4) 3	PE-2 (3-0-0) 3	3	10	0	4	14	12
III	CTD801 Major Project Part-I (0-0-12) 6	OE-1 (3-0-0) 3	OE-2 (3-0-0) 3		2	6	0	12	18	12
	M	.Tech. Option I (With Major	project Part – II with a Thes	is Submissic	n*)					
IV	CTD802 Major Project Part-II (0-0-24) 12				0	0	0	24	24	12
OR										
IV	PE-3 (3-0-0) 3	PE-4 (3-0-0) 3	PE-5 (3-0-0) 3	PE-6 (3-0-0) 3	4	12	0	0	12	12

* Note : Major Project Part - II option has a requirement of Min. CGPA 8 at the end 3rd Sem and B Grade in Major Project Part - I. In exceptional cases CRC may waive the CGPA requirement

Master of Technology in Biomedical Engineering

Centre for Biomedical Engineering

The overall credits structure

BMD802 Major Project-II

Total Credits

		Core				I	Elective		Total					
Catego	ory BC	СС	СР			PE	0	E	Total					
Credit	ts 02	18	21			09	0	3	53]				
Bridge Cou	urses (Core)						Program	Electi	ives					
BMV701 B	asic Electronics		1	0	0 1	1	BVQ706	Gradu	uate Students	s Sesearch Seminar	0	0	2	1
BMV702 B	asic Mathematics for	Biologists	1	0	0 1	1	BML707	Moleo	cular Bioengir	neering for Human Health	3	0	0	3
	asic Biology & Physic	0	1	0	0 1	1				Efficacy and Delivery	3	0	0	3
	lechanics of Biomate	0,	1	0	0 1	1	BML714	Advar	nced Neurom	echanics	3	0	2	4
			•	Ũ	-		BML734	Physi	iological Sign	al Processing	3	0	0	-
T	otal Credits				ž	2 ′	BML735	Biom	edical Image	and Signal Processing	2	0	2	3
							BML741	Medio	cal Device De	esign	2	0	4	
	shall take any two co	•					BML774	Soft T	issue Charac	terization and Applications	3	0	_	4
background	l (Engg./ Biology) on s	suggestion of the	program	1 ad	vise	r.	BML750	Point	of Care Med	ical Diagnostic Devices	3	0	0	3
							BML771		paedic Devic	e Design	2	-	-	2
Program C	ore						BML772		brication		2		_	
BML770 F	undamentals of Biom	echanics	3	0	0 3	3			outational Phy		2		_	
BML710 In	ndustrial Biomaterial T	echnology	3	0	0 3	3	BML781		•	Design and Prototyping	2		2	
BML720 M	ledical Imaging	••	3	0	0 3	3				An Engg. Perspective	2	1	0	3
BML737 A	pplication of Mathema	atics in Biomedic	al 2	0	0 2	2				ues in Biomedical Engg.	3	0	0	3
	ingineering								e Engineering	5	3	-	-	-
	iomedical Ethics, Saf	etv and Regulato	orv 2	0	0 2	2	BML815			Biomedical Engineering	2	0	0	2
	ffairs		,				BML820		aterials		3	0	0	3
BML740 B	iomedical Instrument	ation	3	0	0 3	3	BML860		medicine		3	0	0	3
BMP743 B	asic Biomedical Labo	oratory	0		4 2	2			ensor Technol		3	0	2	
	lajor Project-I	,	0		0 9	9			•	and Therapy	3	0	0	3
	laior Project-II		0	-		12	BML880	Healt	hcare Weara	bles: Design and	2	0	2	3

0 0 0 12

39

Applications

BMV704 Fundamentals of Neuromechanics

Sem.			Courses				Lecture courses	Co	ontact	: h/we	ek	Credits
		(Number, Al	obreviated Title, I	-T-P, credits))		Lec	L	Т	Р	Total	Č
I	BML770 Fundamentals of Biomechanics (3-0-0) 3	BML710 Industrial Biomaterial Technology (3-0-0) 3	BML720 Medical Imaging (3-0-0) 3	PE-1# (2-4)	BC-1 (1)	BC-2 (1)	6	13-15	0	0	13-15	13-15 [!]
Ш	BML737 Application of Mathematics in Biomedical Engineering (2-0-0) 2	BML760 Ethics, Safety and Regulatory Affairs (2-0-0) 2	BML740 Biomedical Instrumentation (3-0-0) 3	BMP743 Basic Biomedical Laboratory (0-0-4) 2	PE-2# (2-4)	PE-3# (2-4)	5	11-13	0	4	15-17	13-15 [,]
Summer			•			•						
III	BMD801 Major Project-I (0-0-18) 9			OE-1 (2-4)			2	2-4	0	18	20-22	11-13
IV	BMD802 Major Project-II (0-0-24) 12						0	0	0	24	24	12

PE-1, 2 & 3; OE-1: Minimum 2 to maximum 4 credits can be taken by students towards each program or open elective courses.

Total credits for three program electives and one open electives should be a minimum of 12.

! Total course credits for students in each semester should not exceed 15 for the first two semesters.

1 0 0 1

Programme Code: AIB

3 0 2 4

Master of Technology in Machine Intelligence and Data Science (MINDS)

Yardi School of Artificial Intelligence

The overall credits structure for the balanced stream (AIB)

Category	PC	СВ	Project (Core)	PE	Total
Credits	12	4	18	20	54

Bridge C		0	0	0		COL775 AIL721	Deep Learning Deep Learning
	* Principles of Artificial Intelligence	-	0	_	-	AIL722	Reinforcement L
* May be	waived on the recommendations of the programme	co-0	ordir	nato	r.	AIL723	Graph Machine
Program	1 Core					COL775	Deep Learning
AIL701	Mathematical Foundations of MINDS/	3	0	0	3	COL777	Deep Reinforcer
ELL780	Mathematical Foundations of Computer	3	0	0	3	COL776	Learning Probab
	Technology					ELL729	Stochastic Contro
COL774	5 5 5	3	0	2		ELL880	Computational Le
ELL784	Introduction to Machine Learning	3	0	0	3	ELL791	Neural Systems
	+ Machina Laomina Lab L	~	~	2	4	ELL795	Swarm Intelliger
AIP701 COL761	Machine Learning Lab-I Data Mining	0 3	0 0	2 2	1	ELL799	Natural Computi
AIV790	Ethical Considerations in MINDS	1	0	2		AIL821	Special Topics in
AID891	M.Tech. Project Part-I	0	0		26	AIL822	Selected Topics in
AID892	M.Tech. Project Part-II	Õ	Õ		12	COL870	Special Topics in
Note: A c	ombination of EE's introduction to machine learning	сог	ırse	EL	L784	Program	Electives (Data
	-0) with a machine learning practical course, AIP70	1 (0	-0-2	2) w	ill be	ELL880	Special Topics in
con	sidered equivalent to COL774.					MTL717	Fuzzy Sets and
Program	Electives (Mathematics)					ELL718	Statistical Signa
ELL706	Optimization for Electrical Engineers	3	0	0	3	BML738	
MTL851	Applied Numerical Analysis	3	0	0	3	COL764	Information Retr
AIL711	Numerical Optimization	3	0	0	3	COL760	Advanced Data
AIL712	Multivariate Statistics	3	0	0	3	AIL741	Querying and M
ELL711	Signal Theory	3	0	0	3	AIL742	Scalable Data H
ELL719	Detection and Estimation Theory	3	0	0	3	AIL763	Artificial Intellige
MTL704	Numerical Optimization	3	0	0	3	COL877	Special Topics in
MAL717	Fuzzy Sets and Applications	3	0	0	3	COL868	Special Topics in
MAL725	Stochastic Proceses and Applications	3	0	0	3	AIL841	Special Topics in
MTL757	Introduction to Algebraic topology	3	0	0	3	Brogram	Electives (AI Ap
MTL763	Introduction to Game theory	3	0	0	3		
MTL799	Mathematical Analysis in Learning Theory	3	0	0	3	APL744 APL745	
AIL801	Intro. to the Mathematics of Machine Learning	3	0	0	3		Deep Learning f

Program	Electives	s (Lear	ning)		
AILOUT	11110.101	ie mau	iemai	103 0	i wa

ELL882	Large-Scale Machine Learning	3	0	0	3
ELL888	Advanced Machine learning	3	0	0	3

00L//3	Deep Leanning	5	U	2	4
AIL721	Deep Learning	3	0	2	4
AIL722	Reinforcement Learning	3	0	0	3
AIL723	Graph Machine Learning	3	0	2	4
COL775	Deep Learning	3	0	2	4
COL777	Deep Reinforcement Learning	3	0	2	4
COL776	Learning Probabilistic Graphical Models	3	0	0	3
ELL729	Stochastic Control and Reinforcement Learning	3	0	0	3
ELL880	Computational Learning Theory and the Mind	3	0	0	3
ELL791	Neural Systems and Learning Machines	3	0	0	3
ELL795	Swarm Intelligence	3	0	0	3
ELL799	Natural Computing	3	0	0	3
AIL821	Special Topics in Machine Learning-I	3	0	0	3
AIL822	Selected Topics in Machine Learning-II (Proposed)	3	0	0	3
COL870	Special Topics in Machine Learning	3	0	0	3
Program	Electives (Data Science)				
ELL880	Special Topics in Computers - I*	3	0	0	3
MTL717	Fuzzy Sets and its Applications	3	0	0	3
ELL718	Statistical Signal Processing	3	0	0	3
BML738	Biomedical data analysis	3	0	0	3
COL764	Information Retrieval and Web Search	3	0	2	4
COL760	Advanced Data Management	3	0	2	4
AIL741	Querying and Mining Graph Data	3	0	2	4
AIL742	Scalable Data Handling for ML	3	0	2	4
AIL763	Artificial Intelligence for Earth Observation	3	0	2	4
COL877	Special Topics in Data Mining	3	0	0	3
COL868	Special Topics in Database Systems	3	0	0	3
AIL841	Special Topics in Data Science	3	0	0	3
Program	Electives (AI Applications)				
APL744	Probabilistic Machine Learning for Mechanics	3	0	2	4

APL/44	Probabilistic Machine Learning for Mechanics	3	0	2	4	
APL745	Deep Learning for Mechanics	3	0	2	4	
BML815	Deep Learning for Medical Image Analysis	2	0	0	2	
BML735	Biomedical signal and image processing	2	0	2	3	
COL727	Rapid Mixing in Markov Chains	3	0	0	3	
COL772	Natural Language Processing	3	0	2	4	

Sem.		Courses			Lecture courses	Co	ontac	t h/w	veek	Credits
Jeni.		(Number, Abbreviated Title,	L-T-P, Credits)		Led cou	L	Т	Ρ	Total	Cre
I	AIL701 Numerical Optimization/ ELL780 Mathematical Foundations of Computer Technology (3-0-0) 3	Bridge 1: COL671 Artificial Intelligence (3-0-2) 4	COL774 Machine Learning/ ELL784 Intro. to Machine Learning + AIP701 Machine Learning Lab-I (3-0-2) 4	COL761 Data Mining (3-0-2) 4	-	12	0	6	18	15
II	PE1 (3-0-2) 4	AIV790 Ethical Considerations in MINDS (1-0-0) 1	PE-2 (3·0·2) 4	PE-3 (3-0-0) 3	-	10	0	4	14	12
III	PE-4 (3·0-0) 3	PE-5 (3-0-0) 3	AID891 M.Tech. Project Part-I (0-0-12) 6	PE-6 (3-0-0) 3	-	9	0	12	21	15
IV	AID891 Major Project Part-II (0-0-24) 12				-	0	0	24	24	12

Note: A combination of EE's introduction to machine learning course ELL784 (3-0-0) with a machine learning practical course, equivalent to COL774

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COL770 Advanced Artificial Intellig	gence 3	0	2	4	MTL785	Natural Language Processing	3	0	0	3
COL786 Advanced Functional Bra	in Imaging 3	0	2	4	AIL861	Special Topics in AI Applications	3	0	0	3
ELL718 Statistical Signal Process	sing 3	0	0	3	COL864	Special Topics in Artificial Intelligence	3	0	0	3
ELL793 Computer Vision	3	0	0	3	COL873	Special Topics in Natural Language Processing	3	0	0	3
COL780 Computer Vision	3	0	0	3	AIL862	Special Topics in Computer Vision	3	0	0	3
COL778 Principles of Autonomous	s Systems 3	0	2	4	COL878	Special Topics in AI-based Robotics	3	0	0	3
ELL881 Special Topics in Comput	ers - II* 3	0	0	3						
ELL883 Embedded Intelligence	3	0	0	3	D					
ELL885 Machine Learning for Con	nputational Finance 3	0	0	3	Program	Electives (Other)				
ELL890 Computational Neuroscie	ence 3	0	0	3	AID799	Minor Project	0	0	6	3
ELL891 Advances in Deep Learn	ing 3	0	0	3	AID710	Mini Project in Artificial Intelligence	0	0	6	3
MTL733 Stochastic of Finance	3	0	0	3	AIS710	Independent Study in Artificial Intelligence	0	3	0	3

*Subject to approval of topic/specialization in a particular semester by the School Research Committee (ScRC).

Master of Technology in Cyber Security Interdisciplinary Programme

The overall credits structure

Category	PC	PE	OE	Total
Credits	32	16-24	00	48-56

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JCD891	Minor Project	0	0	6	3				
JCD892	M.Tech. Project Part-I	0	0	12	6				
JCD893	M.Tech Project Part-II	0	0	24	12				
COL702	Advanced Data Structures/ ELL781 Software	3	0	2	4*				
	Fundamentals for Computer Tech**								
COL759	Cryptography & Computer Security/	3	0	0	3				
	MTL730 Cryptography								
SIL765	Network and System Security/ ELL810 Cyber	3	0	2	4*				
	Security and Information Assurance								
** Note the CSE background students will do COL702 and non-CS background students will do ELL781 or as instructed by PEC.									

* Note that since ELL781 & ELL810 being 3-0-0 courses the lab component will be made up with registering for JCP781(0-0-2)1 & JCP810 (0-0-2)1 respectively.

Total Credits

Bridge Courses										
Min. 6 credits, may be waived in exceptional cases on recommendation by PEC										
SIL618	Computer Architecture	3	0	2	4					
COL633	Resources Mgmt. in Computer Systems	3	0	2	4					
COL671	Artificial Intelligence	3	0	2	4					
COL672	Computer Networks	3	0	2	4					

Streame	d Program Electives (PE)									
*Program Electives can be added on the recommendation by PEC										
*Note - Students are required to do three electives in their respective streams										
and one each in the other two streams to ensure breadth.										
Streame	d Electives(JCS) in System Security and Cyl	ber	Foi	ren	sics					
JCS816	Independent Study	0	3	0	3					
COL731	Advanced Compiler Techniques for	3	0	2	4					
	Optimization, Safety and Security									
COL718	Architecture of high performance Computers	3	0	2	4					
COL724	Advanced Computer Networks	3	0	2	4					
COL728	Compiler Design	3	0	3	4.5					
COL729	Compiler Optimisation	3	0	3	4.5					
COL732	Virtualization and Cloud Computing	3	0	2	4					
COL733	Cloud Computing Technology Fundamental	3	0	2	4					
COL768	Wireless Networks	3	0	2	4					
COL851	Special Topics in Operating Systems	3	0	0	3					
COL861	Special Topics in Hardware Systems	3	0	0	3					
COL864	Special Topics in Artificial Intelligence	3	0	0	3					
COL865	Special Topics in Computer Applications	3	0	0	3					
COL867	Special Topics in High Speed Networks	3	0	0	3					
COL870	Special Topics in Machine Learning	3	0	0	3					
COL871	Special Topics in Programming Language	3	0	0	3					

COL874 Special Topics in Compiler and Lang Impl 3 0 0 3

Sem.	Courses				Lecture courses		Credits				
beim	(Number, Abbreviated Title, L-T-P, Credits)					Lec	L	Т	Р	Total	L L
Ι	COL702/ ELL781+JCP781 Advanced Data Structures/Software Fundamentals for Computer Tech (3-0-2) 4 / (3-0-0)3 + (0-0-2)1	Bridge-1 (3·0-2)4	COL759/MTL730 Cryptography & Computer Security/ Cryptography (3-0-0) 3	PE-1 (3-4)		3-4	9-12	0	2-6	11-18	10-15
Ш	JCD891 Minor Project (0-0-6) 3	Bridge-1 (3-0-2)4	SIL765/ELL810 +JCP810 Cyber Security and Information Assurance / Network and System Security (3-0-2) 4 / (3-0-0)3 + (0-0-2)1	PE-2 (3-4)		2-3	6-9	0	8-12	14-21	10-15
III	JCD892 MTP-I (0-0-12) 6	PE-3 (3-4)	PE-4 (3·4)			2	6	0	12-16	18-24	12-15
IV	JCD893 MTP-II (0-0-24) 12	PE-5 (3)			1	1	3	0	20-22	23-25	15

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NOTE: 1. Registration for MTP-II has a requirement of Min. CGPA 7.5 at the end 3rd sem and B Grade in JCD892. In exceptional cases PEC may waive the CGPA requirement

2. MTP - II can also be done in a collaborative manner with Industry/University.

In future joint degree programmes with other institutes/universities can be considered.

We are proposing M. Tech in Cyber security with 20 seats with additional Full-time/Part-time sponsored candidates from Industry/Government.The admissions will be done through GATE in CS/EC/MA/EE as per Institute norms for other interdisciplinary programs.

COL876 Special Top	cs in Formal Methods	3	0	0	3	ELL881	Special Topics in Computers-II	3	-	0	3
COV881 Special Mod	ule in Hardware Systems	1	0	0	1	MTL729	Comp. Algebra & its Applications	3	0	0	3
COV882 Special Mod	ule in Software Systems	1	0	0	1	MTL735	Advanced Number Theory	3	0	0	3
COV887 Special Mod	ule in High Speed Networks	1	0	0	1	MTL744	Mathematical Theory of Coding	3	0	0	3
COL886 Special Top	cs in Operating Systems	3	0	0	3	MTL782	Data Mining	3	0	2	4
ELV710 Special Mod	ule in Cyber Security	1	0	0	1	MTL811	Mathematical Foundation of Al	3	0	0	3
•	ation Theory	3	0	0	3	SIL771	Special Topics in Cyber Security	3	0	0	3
	ommunication Networks	3	0	0	3	SIL773	Digital Watermarking and Steganography	3	0	0	3
	inear Algebra and Optimization		0			SIL775	Biometric Security	3	0	0	3
in Engineeri	a 1	-	-	-	-	SIL779	Data Privacy	3	0	0	3
0	cs in Computers-I	3	0	0	3	SIV810	Special Module in Cyber Security	1			1.5
	cs in Computers-II		0		3	SIV812	Special Module in Computer Forensics	1	0		
ELL892 Internet Tec	•		õ		3	SIV814	Special Module in Application Security	1			1.5
	cal Systems	-	õ	-	3	SIL763	Introduction to Blockchains,	3	Ő		
ELL895 Network Se			õ		3	012100	Cryptocurrencies and Smart contracts	Ũ	Ŭ	-	•
ELL897 Network Ma	5		0		3						
MDL804 Behavioral I	5				1.5		d Electives(JCS) in Embedded System a	nd	Har	du	are
	stem: Applications and Mgmt.		0		3	Security					
MSL855 Electronic C			0		3	JCS816	Independent Study	0	3	0	3
					5 1.5	COL718	Architecture of High-Performance Computer	3	0	2	4
MSL878 Electronic P		3		0	1.5 3	COL719	Synthesis of Digital Systems	3	0	2	4
MTL744 Mathematic	, .					COL720	Real Time Systems	3	0	2	4
	cs in Cyber Security	3		0			Foundations of Automatic Verification	3	0	2	4
0	rmarking and Steganography	3		0	3	COL788	Advanced Topics in Embedded Computing	3	0	0	3
SIL775 Biometric S	5	3	0	-	3		Special Topics in Hardware Systems	3	0	0	3
	ramming Methodologies	3		2			Special Topics in Software Systems	3		0	3
SIL779 Data Privac		3	0	-	3		Special Module in Concurrency	1	0		1
•	ule in Cyber Security	1			1.5		System Level Design and Modelling	3		õ	3
•	ule in Computer Forensics	1			1.5		Special Module in Cyber Security	1		õ	1
•	ule in Application Security	1			1.5		Advanced Digital Signal Processing	3		0	3
	ule on Intelligent Information	1	0	0	1	ELL733	Digital ASIC Design	3		2	4
Processing						ELL748	5	3		0	3
Streamed Electives(ICS) in Cryptography and Cry	otan	aly	sis	;	ELL740		3		0	3
JCS816 Independen			3			ELL703	6,7	3		0	3
COL730 Parallel Pro	5		0			ELL787	Embedded Systems and Applications	3		0	3
		3	0		4	ELL880		3		0	3
COL774 Machine Le	cs in Artificial Intelligence	3 3	0		4 3	ELL880 ELL881	- Provide Prov	3	-	0	3
									0		3
	cs in Computer Applications		0		3	ELL883	5	3			
	cs in Machine Learning	3	0		3		Electronic Commerce			0	3
COL872 Special Top	,	3	0		3		Electronic Payments		50		1.5
•	ule in Machine Learning	1	0		1		Behavioral Finance		50		1.5
•	ule in Artificial Intelligence	1	0		1	SIV810	Special Module in Cyber Security	1	0		1.5
ELL710 Coding The		3	0	-	3	SIV814	Special Module in Application Security	1		1	1.5
ELL712 Digital Com		3	0		3	SIL771	Special Topics in Cyber Security	3		0	3
ELL711 Signal Theo	,	3	0		3	SIL773	Digital Watermarking and Steganography	3	0		3
	gnal Processing		0		3	SIL775	Biometric Security	3	0		3
	igital Signal Processing		0		3	SIL777	Secure Programming Methodologies	3	0		
ELL800 Numerical L	inear Algebra and Optimization	3	0	0	3	SIL781	Secure Hardware-based Systems Design	3	0		
in Engineeri	ng					SIL763	Introduction to Blockchains,	3	0	2	4
ELL880 Special Top	cs in Computers-I	3	0	0	3		Cryptocurrencies and Smart Contracts				

Master of Technology in Energy Studies Interdisciplinary Programme

The overall credits structure

Category		PC	PE	0	Е			Total	
Crea	lits	30	18	0	6			54	
Program	Core								ESL
					0	0	0	0	ESL
SL710		Ecology and En	vironment		3	0	0	3	LUI
SL711	Fuel Tec				3 3	0 0	0 0	3 3	ESI
SL720		Conservation hergy Conversio	20		3	-	0	3	201
		ventional Source			3	0	0	3	ESI
		cs and Planning		eteme	3	0	0	3	ESI
SL760	Heat Tra		for Energy by	3101113	3	0	0	3	ESI
		aboratory			0	õ	6	3	ESI
SD801		oject Part-I (JE	S)		Õ	õ	12	-	ESI
	Total Cr		_ /					30	ESI
									ESI
rogram	Elective	S							JSE
SL714	Power P	lant Engineering	g		3	0	0	3	JSE
	Power Ge	eneration, Transm	ission and Distr	ribution	3	0	0	3	JSS
SL722	Integrate	ed Energy Syste	ems		3	0	0	3	
SL732		ersion and Proc	essing of Wa	ste	3	0	0	3	Pro
SL734	Nuclear				3	-	0	3	ME
		Based Materials	8 Processing		3	0	0	3	ME
SL746		n Energy			3	-	0	3	EEI
ESL755		otovoltaic Devi			3	-	0	3	EEI
ESL768	Wind En	ergy and Hydro	Power Syste	ems	3	0	0	3	CH

ESL770	Solar Energy Utilization	3	0	0	3
ESL779	Li-ion Batteries: Technology and Thermal	3	0	0	3
	Management				
ESL796	Operation and Control of Electrical Energy	3	0	0	3
	Systems				
ESL810	MHD Power Generation	3	0	0	3
ESL840	Solar Architecture	3	0	0	3
ESL850	Solar Refrigeration and Air Conditioning	3	0	0	3
ESL860	Electrical Power Systems Analysis	3	0	0	3
ESL870	Fusion Energy	3	0	0	3
ESL871	Advanced Fusion Energy	3	0	0	3
ESL880	Solar Thermal Power Generation	3	0	0	3
JSD799	Minor Project (JES)	0	0	6	3
JSD802	Major Project Part-II (JES)	0	0	24	12
JSS801	Independent Study (JES)	0	3	0	3
Program	Electives (other Departments)				
MEL815	Applied Combustion	2	0	2	4
MEL816	Analysis of I.C. Engine Processes	3	0	2	4
EEL748	, ,	3	0	0	3
EEL899		3	0	0	3
CHL722		3	0	2	4
	· ····································	-			

Sem.	Courses						C	Credits			
	Courses (Number, Abbreviated Title, L-T-P, Credits)							Т	Р	Total	ů,
I	ESL740 Non-conventional Sources of Energy (3-0-0) 3	ESL711 Fuel Technology (3-0-0) 3	ESL760 Heat Transfer (3-0-0) 3	ESL720 Energy Conservation (3-0-0) 3	PE-1 (3-0-0) 3	5	15	0	0	15	15
II	ESL750 Economics and Planning of Energy Systems (3-0-0) 3	ESL710 Energy, Ecology and Environment (3-0-0) 3	ESP713 Energy Laboratory (0-0-6) 3	ESL730 Direct Energy Conversion (3-0-0) 3	PE-2 (3-0-0) 3	4	12	0	6	18	15
Summer		JSD80	1 Major Project	Part-1 (JES)		0					
ш	JSD801 Major Project Part-I (JES) (0-0-12) 6	OE-1 (3-0-0) 3		OE-2 (3-0-0) 3	2	6	0	12	18	12	
IV		JSD802 Major Project Part-II (JES) (0-0-24) 12				0	0	0	24	24	12
	PE-3 (3-0-0) 3	PE-4 (3-0-0) 3	PE-5 (3-0-0) 3	PE-6 (3-0-0) 3		4	12	0	0	12	12

NOTE: for part time students, the above credits would be completed over 6 semesters with the Major Project Part I & II being offered in the 5^{th} and 6^{th} semesters respectively

Master of Technology in Energy & Environment Technologies and Management Interdisciplinary Programme

The overall credits structure

	Category	PC	PE			(OE	Tota		
	Credits	30	18				06	54		
Bridge	(Audit) Courses	1	0				0	1		
Program C	Core								Applications	
	uel Technology			3			3	ESL779	Li-ion Batteries: Technology and Thermal 3 0	0 3
	Electrical Energy Ma		s		0		3		Management	
	Energy and Environn				0		3	ESL781		03
	Non-conventional So			3	0	0	3		Propulsion	
	Quantitative Methods Management and Pla			3	0	0	3	Program	Electives/Open Electives	
	ndustrial Energy and		lysis		0		3	ESL773	Battery Storage 3 0	0 3
	Cogeneration and Er		ilyoio		ŏ		3	ESL778		0 3
	Energy & Environme					6		ESL780		0 3
	Major Project Part-I (12		ESL782	···· · · · · · · · · · · · · · · · · ·	0 3
Compulso	ory (Audit) Courses							ESL796		0 3
•	• • •	· /			~	~	~	ESL797	Operation of Electrical Energy Systems with Large Scale Integration of Renewable	
	Basic Thermal Engin				0 0		0			24
	Basic Electrical Engi	neening		I	0		0	ESL798		0 3
7	Total Credits						30	ESL804		0 3
Program E	Electives							ESL875	Alternative Fuels for Transportation 3 0	0 3
ESI 721 E	Pulse Width Modulat	ion Techniques and	d AC	3	0	0	3	ESV891	Special Topics on Emerging Trends in	
	Motor Drives		uno	0	0	Ŭ	0			0 1
	Energy Audit			3	0	0	3	ESD799		6 3
	Organic Waste to Energy	av Conversion Techn	noloav			õ		ESS801	Independent Study (ESN) 0 3	
	Hazardous Waste Ma				Õ		3	ESD802	Major Project Part-II (ESN) 0 0	24 1
ESL738 F	Power System Plann	ing and Operation		3	0	0	3	Program	Electives (other Departments)	
	Economics and Final	ncing of Renewabl	е					CLL723	Hydrogen energy and Fuel Cell Technology 3 0	0 3
	Energy Systems	_			0		3	CLL724	Environmental Engg. and Waste Mgmt. 3 0	0 3
	Optimal Design of Er						3	CLL725	Air Pollution Control Engineering 3 0	
	Plasmas for Energy a				0		3	CLL706		0 3
	Environmental Audit a Developing Energy E		ment	3	0	0	3	CLL794		0 3
	Renewable Energy F			3	0	0	3	CVL820	Environmental Impact Assessment 3 0	
	Carbon Audit and Ma				0		3	CVL822	Emerging Technologies for Environmental Mgmt.30Thermal Techniques for Waste Mgmt.30	0303
	Vanomaterials for Er				õ		3			03
	Energy Policy and Pl				Õ		3	CVL024 CVL721		0 3
	Carbon Capture and			3	0	0	3		Air Pollution and control 3 0	
	Environmental Econo				0		3	CVL847		0 3
	Environmental Regu				0		3	ELL765		0 3
	nstrumentation and Co	ontrol in Energy Sys	tems	3			3	MCL812		0 3
	Energy Storage				0		3			0 3
ESL775 L	_iquid Sprays for Ene	ergy Sector and Ind	ustrial	3	0	0	3	PYL727	Energy Materials and Devices 3 0	0 3

Sem.			Course				Lecture courses	С	Contac	t h/we	eek	Credits
		(Number,	Abbreviated T	itle, L-T-P, credi	ts)		Lec	L	Т	Р	Total	5
I	ESL740 Non-conventional Sources of Energy (3-0-0) 3	ESL711 Fuel Technology (3-0-0) 3	ESL715 Electrical Energy Mgmt. Systems (3-0-0) 3	ESL727 Energy and Environment (3-0-0) 3	PE-1 (3-0-0) 3	ESN704 Basic Thermal Engineering/ ESN712 Basic Electrical Engineering (1-0-0) 0	6	16	0	0	16	15
II	ESL776 Industrial Energy and Environment Analysis (3-0-0) 3	ESL784 Cogeneration and Energy Efficiency (3-0-0) 3	ESP728 Energy & Environment Laboratory (0-0-6) 3	ESL774 Quantitative Methods for Energy Mgmt. and Planning (3-0-0) 3	PE-2 (3-0-0) 3		4	12	0	6	18	15
Summer		E	SD801 Major Pi	roject Part-I								
ш	ESD801 Major Project Part-I (0-0-12) 6	OE-1 (3-0-0) 3	OE-2 (3-0-0) 3				2	6	0	12	18	12
IV		ESD8 Major Projec (0-0-24)	t Part-II				0	0	0	24	24	12
	PE-3 (3-0-0) 3	PE-4 (3-0-0) 3	PE-5 (3-0-0) 3	PE-6 (3-0-0) 3			4	12	0	0	12	

NOTE: for part time students, the above credits would be completed over 6 semesters with the Major Project Part I & II being offered in the 5th and 6th semesters respectively

Master of Technology in Renewable Energy Technologies and Management Interdisciplinary Programme

The overall credits structure

	Category	PC	PE				OE	Tota	al					
	Credits	27	24				0	51						
Bridge	e (Audit) Courses	0-4	0				0	0-4	1					
Program	Core							ESL744		na for Energy and Environment	3	0		3
ESL739	Bio-energy : Resource	ces, Technologie	s					ESL746		ogen Energy	3		0	3
	and Applications	· ·		3	0	0	3	ESL749		loping Energy Efficiency and	3	0	0	3
ESL742	Economics and Fina	ncing of Renewa	able							wable Energy Projects				
	Energy Systems	-		3	0	0	3	ESL751		wable Energy Resource Assessment	3	0	0	3
ESL753	Solar Thermal Techn	ologies and Sys	tems	3	0					Forecasting	_	_	_	_
ESL755	Solar Photovoltaic D	evices and Syst	ems	3	0	0	3	ESL752		on Audit and Management	3	-	0	3
ESL768	Wind Energy and Hy	dro Power Syste	ems	3	0	0	3	ESL756		gy Policy and Management	3	-	0	3
ESP705	Renewable Energy L	aboratory		0	0	6	3	ESL757		gy Policy and Planning	3	-	0	-
	Minor Project (ESR)			0	0	6	3	ESL771			3	0		
ESD851	Major Project-I (ESR)		0	0	12	6	ESL772		gy Storage	3	-		3
		, 						ESL773		ry Storage	3	0		
• •	Audit) Courses (BA):	(Based on Stud	lent's ba	ckg	rou	nd	and	ESL774		titative Methods for Energy Mgmt. & Planning		0		
preparedi	ness)							ESL775		d Sprays for Energy Sector and Industrial	3	0	0	3
ESN702	Introduction to Project	ct Management		1	0	0	0			cations				
ESN703	Technical Writing			1	0	0	0	ESL779		Batteries: Technology and Thermal	3	0	0	3
ESN704	Basic Thermal Engin	eerina (for		1	0	0	0			agement	~	~		~
	Non-mechanical Stu	•						ESL780		Emission Vehicles	3	•	0	3
ESN712	Basic Electrical Engi	,		1	0	0	0	ESL781		native Fuels for Aircraft and Rocket	3	0	0	3
LOITIL	Non-electrical Stude			•	Ũ	Č	Ū			ulsion				
ESN791	Applied Mathematics	,	onal	1	0	٥	0	ESL790		y and Regulatory Aspects of Power				
LONIOT	Methods		onai		Ŭ	Ű	0			em Operation with Increasing	~	~	0	~
	Total Credits						27	ESL791		wable Energy Share		-	-	-
	Total Credits						21			wable energy Integration and Power Systems tion and Control of Electrical Energy Systems				
Program	Electives							ESL796		6, ,				
	Power Generation, Tran	amission and Dia	tribution	2	0	0	2	ESL797		ation of Electrical Energy Systems with e Scale Integration of Renewable	3	0	2	4
	,				0					gy Sources				
ESLIZI	Pulse Width Modulat Motor Drives	ion recrimques	anu AC	3	0	0	3	ESL798		buted and Decentralized Energy Systems	3	0	0	3
ESL729	Renewable Energy a			3	0	^	3	ESL798		ntials of Electrical Power Generation	2		2	
ESL729 ESL730	• • • • • • • • • • • • • • • • • • • •		L	з 3	0			LOL/99		enewable Energy Sources	2	0	2	5
	Direct Energy Conve		ato	3 3	0			ESL840	-	Architecture	3	0	0	3
	Bioconversion and P		ISIE	3 3	0			ESL842		tive CO ₂ Emission Technologies	3	0	0	-
ESL/3/	Plasma Based Mater	iais Processing		3	U	U	3	L3L042	меуа		5	0	U	5

FULL TIME (4-Semester Schedule)

Sem.			Cour					Lecture courses	(Conta	ct h/wee	k	Credits
Jenn.		(Numbe	r, Abbreviated	d Title, L-T-P, c	redits)			C Lec	L	Т	Р	Total	U C I
I	ESL739 Bio-energy : Resources, Technologies & Applications (3-0-0) 3	ESL742 Economics and Financing of Renewable Energy Systems (3-0-0) 3	ESL755 Solar Photovoltaic Devices and Systems (3-0-0) 3	ESL753 Solar Thermal Technologies and Systems (3-0-0) 3	PE-1 (3-0-0) 3	BA-1 (1-0-0) 0 [If required]	BA-2 (1-0-0) 0 [If required]	5-7	15-17	0	0	15-17	15
II	ESP705 Renewable Energy Laboratory (3-0-0) 3	ESL768 Wind Energy and Hydro Power Systems (3-0-0) 3	PE-2 (3-0-0) 3	PE-3 (3-0-0) 3	PE-4 (3-0-0) 3	BA-3 (1-0-0) 0 [If required]	BA-4 (1-0-0) 0 [If required]	4-6	12-14	0	6	18-20	15
Summer		Internship an	d ESD801 [I	Major Project Pa	irt-I (0-0-1	2)6]							
III		Major Pro	SD851 ject Part-I (ESR 6 [and Internship	,		ESD798 Minor Proje (0-0-6) 3	ct (ESR)	0	0	0	18	18	09
IV	[with	n option to carry out in the	ne home country fo	I (ESR) (0-0-24)	student with	provision for		0 or 4	0 or 12	0	0 or 24	12 or 24	12
	PE-5 (3-0-0) 3	PE-6 (3-0-0) 3		PE-7 (3-0-0) 3		PE-8 (3-0-0) 3							

* Possibility of inviting foreign students about a month in advance to take bridge courses is being explored

ESL845	Net Zero Energy Buildings	3	0	0	3	ESS851 Independent Study (ESR)	0	3	0	3
ESL850	Solar Refrigeration and Air-conditioning	3	0	0	3	ESD852 Major Project Part – 2 (ESR)	0	0	24	12
ESL852	Emerging Materials for Next Generation	3	0	0	3					
	Photovaltaic Applications									
ESL855	Solar Photovoltaic Power Generation	3	0	0	3	Program Electives (From outside Centre)				
ESL875	Alternative Fuels for Transportation	3	0	0	3	ASL760 Renewable Energy Meteorology	3	0	0	3
ESL880	Solar Thermal Power Generation	3	0	0	3	CLL723 Hydrogen Energy and Fuel Cell Technology	3	0	0	3
ESL885	Solar Industrial Process Heating	3	0	0	3	EEL758 Power Quality	3	0	0	3
ESP706	Renewable Energy Simulation Laboratory	0	0	6	3	EEL765 Smart Grid Technology	3	0	0	3
ESV891	Special Topics on Emerging Trends in	1	0	0	1	MCL825 Design of Wind Power Farms	3	0	2	4
	Energy and Environmental Technologies					PYL727 Energy Materials and Devices	3	0	0	3

PART TIME (6-Semester Schedule)

Sem.		Ca	ourses		Lecture courses	(Conta	nct h/wee	k	Credits
Jeni.		(Number, Abbrevia	ted Title, L-T-P, credits))	Cou	L	Т	Р	Total	Cre
I	ESL739 Bio-energy : Resources, Technologies & Applications (3-0-0) 3	ESL742 Economics and Financing of Renewable Energy Systems (3-0-0) 3	ESL753 Solar Thermal Technologies and Systems (3-0-0) 3	BA-1 (1-0-0) 0 [If required]	3-4	9-10	0	0	9-10	9
II	ESL768 Wind Energy and Hydro Power Systems (3-0-0) 3	ESP705 Renewable Energy Laboratory (0-0-6) 3	ESL755 Solar Photovoltaic Devices and Systems (3-0-0) 3	BA-2 (1-0-0) 0 [If required]	2-3	6-7	0	6	9-10	9
Summer				1						
III	PE-1 (3-0-0) 3	PE-2 (3-0-0) 3	BA-3 (1-0-0) 0 [If required]		2-3	6-7	0	0	6-7	6
IV	PE-3 (3-0-0) 3	PE-4 (3-0-0) 3	BA-4 (1-0-0) 0 [If required]		2-3	6-7	0	6	6-7	6
Summer		•	and ESD851 t Part-I (0-0-12) 6]							
v		ESD851 Major Project Part-I (0-0-12) 6 [and Internsh	ip]	ESD798 Minor Project (0-0-6) 3	0	0	0	18	18	9
VI		Major	6D852 Project Part J-24) 12		0.05.4	0 12	0	0 at 24	12 24	12
VI	PE-5 (3-0-0) 3	PE-6 (3-0-0) 3	PE-7 (3-0-0) 3	PE-8 (3-0-0) 3	U or 4	0 or 12	0	U OF 24	12 or 24	12

Programme Code: JIT Master of Technology in Industrial Tribology and Maintenance Engineering Interdisciplinary Programme

The overall credits structure

Cate	egory	PC	PE	OE			Total						
Cre	edits	33	09	06			48						
Program	n Core							ITL710	Design of Tribological Elements	-	-	-	3
ITL702	Diagnos Monitori	tic Maintenance ng	and Conditior	n 3	0	2	4	ITL711	Reliability, Availability and Maintainability (RAM) Engineering	3	0	0	3
ITL703	Fundam	entals of Tribolo	ogy	3	0	2	4	ITL717	Corrosion and its Control	3	0	0	3
ITL705		s for Tribologica		3	0	0	3	ITL730	Lubricants	2	0	2	3
ITL714		Analysis and Re		-	-	2		ITL740	Risk Analysis and Safety	2	1	0	3
JIT801	,	oject Part-I (JIT	,			12		ITL752	Bulk Materials Handling	2	0	2	3
JIT802	-	oject Part-II (JI	Г)	0	0	24	12	ITL760	Noise Monitoring and Control	2	0	2	3
	Total Ci	redits					33	ITL810	Bearing Lubrication	3	0	0	3
Program	n Elective	s						JIS800	Independent Study	0	3	0	3
ITL709	Mainten	ance Planning a	ind Control	3	0	0	3	JID800	Minor Project	0	0	6	3

Sem.			Courses				Lecture courses		Conta	ict h/v	veek	Credits
		(Number, Abbre	eviated Title, L-T-P,	Credits)			Lec	L	Т	Р	Total	L L
I	ITL703 Fundamentals of Tribology (3-0-2) 4	ITL705 Materials for Tribological Applications (3-0-0) 3			PE-1 (3-0-0) 3	OE-1 (3-0-0) 3	4	12	0	2	14	13
II	ITL702 Diagnostic Maintenance & Condition Monitoring (3-0-2) 4	ITL714 Failure Analysis & Repair (3-0-2) 4			PE-2 (3-0-0) 3	PE-3 (3-0-0) 3	4	12	0	4	16	14
ш	JID801 Major Project Part-I (JIT) (0-0-12) 6				OE-2 (3-0-0) 3		1	3	0	12	15	9
IV	JID802 Major Project Part-II (JIT) (0-0-24) 12						0	0	0	24	24	12

Master of Technology in Instrument Technology Interdisciplinary Programme

The overall credits structure

Cate	gory	PC	PE	0	Е			Total				
Cre	dits	39	15	()			54				
Program	Core								PYL780	Diffractive and micro optics	Diffractive and micro optics 3	Diffractive and micro optics 3 0
DSD801	Major Pr	oject Part-I			0	0	12	6	PYL790	Integrated Optics	o ,	a
DSD802	Major Pr	oject Part-II			0	0	24	12	PYL792	Optical Electronics		
DSL711	Sensors	and Transduce	rs		3	0	0	3	PYL793	Photonic Devices		
DSL712	Electroni	ic Techniques fo	or Signal		3	0	0	3	PYP761	Optical fabrication and Metrology Laboratory	Optical fabrication and Metrology Laboratory 0	Optical fabrication and Metrology Laboratory 0 0
		ning and Interfa							CRL725	Technology of RF and Microwave		
DSL714		ent Design and S				0	2			Solid State Devices		
DSL731		Components and		ments		0	0		DSC812		•	•
DSL734		ased Instrument			3	-	-	3	DSL601	Electronic Components and Circuits	•	•
		ent Technology L				0	-	3		(for Non-electrical Students only)		· · · · · · · · · · · · · · · · · · ·
DSP704		ent Technology L	_aboratory-II		0	0	6	3	DSL603	Material and Mechanical Design	Material and Mechanical Design 3	Material and Mechanical Design 3 0
	Total Cr	redits						39		(for electrical students only)	(for electrical students only)	(for electrical students only)
Program	Elective	s							DSL722	Precision Measurement Systems	, , , , , , , , , , , , , , , , , , ,	,
ELL746		cal Electronics			3	-	-	3	DSL733	Optical Material and Optical Techniques in Instrumentation	- Frank and a second se	
ELL783	•	g System			3	0	2		DSL737	Display Devices and Technology	Display Devices and Technology 3	Display Devices and Technology 3 0
ELL787 ELL735		ed Systems and ntegrated Circui			3 3	0 0	0 0	3 3	DSL740	Instrument Organization and Ergonomics		
ELL735 ELL734	•	SI design	lis		3 3	0		ა ვ	DSL742	Integrated Quantum Photonics	5 S	5
ELL734 ELL784		tion to Machine	Learning		3	0	•	3 3	DSL750	Opto-electronic Detectors and Image Sensors		
ELL883		ed Intelligence	Leanning		3	0	-	3	DSL755	Sensing and Imaging Techniques		
MCL705		ental Methods			3	0	2	•	DSL811	Selected Topics in Instrumentation-I	Selected Topics in Instrumentation-I 3	Selected Topics in Instrumentation-I 3 0
	•	onic Product De	sian		3	Ő	2		DSL814	Selected Topics in Instrumentation-II	•	•
MCL781		ng Processes ar	0		3	0	2		DSL815	Special Topics in Instrumentation		
		ion in Manufact			3	0	2		DSP705	Advanced Instrument Technology Lab		
PYL755		tics and optical	0	on	3	0	0	3	DSS720	Independent Study	Independent Study 0	Independent Study 0 3

Sem.			Cours			Lecture courses	c	Contac	t h/we	eek	Credits
Sem.		(Numbe	er, Abbreviated	Title, L-T-P, Credits)		Lect	L	Т	Р	Total	Cre
I	DSP703 Instrument Technology Laboratory-I (0-0-6) 3	DSL711 Sensors and Transducers (3-0-0) 3	DSL731 Optical Components and Basic Instruments (3-0-0) 3	DSL601*/ DSL603** Electronic Components and Circuits/Material and Mechanical Design (3-0-0) 3	PE-1 (3-0-0) 3	4	12	0	6	18	15
Ш	DSP704 Instrument Technology Laboratory-II (0-0-6) 3	DSL712 Electronic Techniques for Signal Conditioning and Interfacing (3-0-0) 3	DSL714 Instrument Design and Simulations (2-0-2) 3	DSL734 Laser Based Instrumentation (3-0-0) 3	PE-2 (3-0-0) 3	4	11	0	8	19	15
Summer											
III	DSD801 (0-0-12) 6	PE-3 (3-0-0) 3	PE-4 (3-0-0) 3			2	6	0	12	18	12
IV	DSD802 (0-0-24) 12					0	0	0	24	24	12

*For students with non-electrical Engineering, Electronics, Instrumentation, Electronics and Communication background. **For students with Electrical Engineering, Electronics, Instrumentation, Electronics and Communication background.

Programme Code: JOP

Master of Technology in Optoelectronics and Optical Communication Interdisciplinary Programme

The overall credits structure

Cate	gory	PC	PE	0	E			Total						
Cre	dits	24	27	0				51						
Program	Core								ELL819	Introduction to Plasmonics	3	0	C	D
ELL717	Optical (Communication	Svstems		3	0	0	3	ELL820	Photonic Switching and Networking	3	0	C)
ELL727	•	ommunication &		vstems	3	0	0	3	JOD802	Major Project Part-II	0	0	24	4
JOD801	•	roject Part-I		,	0	0	12	6	JOL793	Selected Topics-I	3	0	С)
IOP791	Laborato	ry-I (Fiber Optics I	Lab/Opt. Comr	n. Lab)	0	0	6	3	JOL794	Selected Topics-II	3	0	С)
IOP792	Laborato	ry-II (Fiber Optics	Lab/Opt. Com	m. Lab)	0	0	6	3	JOS795	Independent Study	0	3	С)
YL791	Fiber Op	otics			3	0	0	3	JOV796	Selected Topics in Photonics	1	0	С)
YL792	Optical I	Electronics			3	0	0	3	PYL748	Quantum Optics	3	0	С)
	Total C	redits						24	PYL749	Quantum Information and Computation	3	0	С)
									PYL756	Fourier Optics and Holography	3	0	С)
rogram	Elective	S							PYL757	Statistical and Quantum Optics	3	0	С)
LL716	Telecomr	nunication Switch	ing and Transr	nission	3	0	0	3	PYL758	Advanced Quantum optics and application	3	0	С)
LL720		ed Digital Signal	•		3	0	0	3	PYL760	Biomedical optics and Bio-photonics	3	0	С)
ELL723	Broadba	and Communica	tion Systems		3	0	0	3	PYL770	Ultra-fast Optics and Applications	3	0	С)
ELL726	Nano-Pl	notonics and Pla	asmonics		3	0	0	3	PYL771	Green Photonics	3	0	С)
ELL728	Optoele	ctronic Instrume	entation		3	0	0	3	PYL790	Integrated Optics	3	0	С)
LL738	Micro ar	nd Nano Photon	ics		3	0	0	3	PYL793	Photonic Devices	3	0	С)
LL785	Comput	er Communicati	on Networks		3	0	0	3	PYL795	Optics and Lasers	3	0	С)
ELL814	Wireless	s Optical Comm	unications		3	0	0	3	PYL891	Fiber Optic Components and Devices	3	0	С)
ELL817	Access	Networks			3	0	0	3	PYL892	Guided Wave Photonic Sensors	3	0	С)

Sem.			Courses			 Lecture courses	Co	ontac	t h/w	eek	Credits
Jenn.		(Number, Abbr	eviated Title, L-	T-P, Credits)		Cou	L	Т	Р	Total	L L L L
I	PYL791 Fibre Optics (3-0-0) 3	ELL727 Ditigal Comm. & Information Systems (3-0-0) 3	JOP791 Laboratory-I (Fibre Optics Lab/Opt. Comm. Lab) (0-0-6) 3	PYL/ELL PE-1 (3-0-0) 3	PYL/ELL PE-2 (3-0-0) 3	4	12	0	6	18	15
п	PYL792 Optical Electronics (3-0-0) 3	ELL717 Optical Communication System (3-0-0) 3	JOP792 Laboratory-II (Fibre Optics Lab/Opt. Comm. Lab) (0-0-6) 3	PYL/ELL PE-3 (3-0-0) 3	PYL/ELL PE-4 (3-0-0) 3	4	12	0	6	18	15
Summer											
III	PYL/ELL PE-5 (3-0-0) 3	JOD801 Major Project Part-I (0-0-12) 6				1	3	0	12	15	9
IV	JOD802 Major Project Part-II Or 12 Credits PE Courses in lieu of Major Project Part-II) (0-0-24) 12					0	0	0	24	24	12

Total = 51

Programme Code: JTM Master of Technology in Telecommunication Technology & Management Interdisciplinary Programme

The overall credits structure

Category	PC	PE	O	Ε		Tota	1					
Credits	36	12	0			48			3 0 1 0 1 50 3 0 1 50			
ELL712 Digita	I Theory I Communications uter Communicat			3 3 3	0	0 3 0 3 0 3	SMD792	Minor Project	0	0	6	3
BSP710 Comm ELP725 Wirele MSL723 Teleco JTD801 Major JTD802 Major	unication & Signal I ess Communicatic ommunications Sy Project-I Project-II Credits	Processing Tech on Laboratory		0 0 3 0	1 1 0 0	4 3 4 3 0 3 126 2412 36	Learning COL761 COL762 COL770 COL776 ELL706 ELL729 ELL784/	Data Mining Database Implementation Advanced Artificial Intelligence Learning Probabilistic Graphical Optimization for Electrical Engineers Stochastic Control and Reinforcement Learning Introduction to Machine Learning	3 3 3 3 3 3 3 3 3	0 0 0 0 0	0 0 0 0	4444
Streamed Elect CRL707 Huma ELL706 Optim ELL715 Digita ELL718 Statis ELL719 Detec ELL720 Advar	ives (JTM) in (Sig n & Machine Spee ization for Electric I mage Processin tical Signal Processi tion and Estimatic ceed Digital Signa	ech Communic cal Engineers ng ssing on Theory I Processing		3 3 3 3 3 3 3	0 0 0 0 0 0	0 3 0 3 2 4 0 3 0 3 0 3	ELL886 ELL888 JTD792/ SMD792	Neural Systems and Learning Machines Swarm Intelligence Large-Scale Machine Learning Big Data Systems Advanced Machine Learning Minor Project	3 3 3 3	0 0 0 0	0 0 0	
ELL729 Stocha ELL784 Introd ELL786 Multin ELL792 Comp ELL793 Comp	uter Graphics uter Vision ted Topics in Infor	einforcement Lea	Ū	3 3 3 3 3 3 3 0	0 0 0 0 0 0 0	0 3 0 3 0 3 0 3 0 3 0 3 0 3 0 3 6 3	COL718 COL719 ELL766 ELL787 ELL790 ELL887 ELL898 ELL899	Pervasive Computing Testing and Fault Tolerance	3 3 3 3 3 3 3 3	0 0 0 0 0 0 0 0	0 0 0 0	4400000000000
COL724 Advar ELL706 Optim ELL710 Codin		etworks cal Engineers		3 3 3	0 0 0	2 4 0 3 0 3	SMD792	Digital Systems Lab Minor Project	0 0	1	4 4 6	e) e) e)
ELL716 Telecc ELL717 Optica ELL718 Statis ELL719 Detec ELL720 Advar ELL723 Broad ELL729 Stocha ELL813 Advar ELL814 Wirela ELL815 MIMC ELL816 Satell ELL817 Acces ELL818 Telecc ELL820 Photo ELL824 Select	ommunication Tec nic Switching and ed Topics in Inform rk Performance Me	ching & Transmi Systems ssing In Theory I Processing ation Systems inforcement Lea Theory nunications inications n chnologies I Networking nation Processi	arning ng-II	3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	000000000000000000000000000000000000000	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	MSL700 MSL701 MSL707 MSL713 MSL726 MSL728 MSL814 MSL8150 MSL850 MSL888 MSL888 MSL888 MSL888 MSL888 MSL888 MSL8883 MSL8893 MSL8894	Fundamentals of Management of Technology Strategic Technology Management Management Accounting Information Systems Management Telecom Systems Management Marketing Management Data Visualization Decision Support and Expert Systems Management of Information Technology Electronic Payments ICTs Development and Business IT Consulting and Practice Data Warehousing for Business Decisions Public Policy Issues in the Information Age Social Media and Business Practices Minor Project	3 2 3 2 3 2 3 2 1.5 2 3 1.5 1.5 1.5 3 1.5 3 1.5 3	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	$\begin{smallmatrix} 0 & 2 & 0 & 0 \\ 2 & 0 & 2 & 0 & 2 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0$	1

Com		Cour		ure 'ses	C	onta	act h/w	veek	Credits	
Sem.		(Number, Abbreviated	I Title, L-T-P, Credits)		Lecture courses	L	Т	Р	Total	Cre
I	ELL711 Signal Theory (3-0-0) 3	ELL712 Digital Communication (3-0-0) 3	ELL785 Computer Comm. Networks (3-0-0) 3	BSP710 Communication & Signal Processing Technologies (0-1-4) 3	3	9	1	4	14	12
II	ELP725 Wireless Comm. Lab (0-1-4) 3	JTD792 Minor Project (0-0-6) 3 / PE-1 (3-0-0) 3	MSL723 Telecom Syst. Mgmt. (3-0-0) 3	PE-2 (3·0-0) 3	3/2	6/9	1	10/4	17/13	12
Summer										
III	JTD801 Major Project Part-I (0-0-12) 6	PE-3 (3-0-0) 3	PE-4 (3-0-0) 3		2	6	0	12	18	12
IV	JTD802 Major Project Part-II (0-0-24) 12				0	0	0	24	24	12

Total = 48

73

Master of Technology in VLSI Design Tools and Technology Interdisciplinary Programme

The overall credits structure

Cate	egory	PC	PE	0	С	Total						
Cre	dits	18	30	0)	48						
Program ELL734 ELP736 JVD811	MOS VI	,	tory		3 0 0 0 0 0	0 3 6 3 24 12 18	CRL711	Independent Study Numerical Optimization Architectures and Algorithms for DSP Systems CAD of RF and Microwave Circuits RF and Microwave Active Circuits		0 0 0	0 0 4 2 0	
Program								d Electives (JVL) in (ASIC and SoC Design Synthesis of Digital Systems	· ·	0	2	2
COL702 COL718	Advance Architect Process Digital C Flexible Introduc Photovo Quantur Biomed Active a	atication & Signal F ed Data Structur ture of High Perfo or Design Lab Communications Electronics tition to MEMS D oltaics m Electronics ical Electronics nd Passive Filte n Deep Submicr	res irmance Comp esign ir Design	outers	0 1 3 0 0 0 3 0 3 0 3 0 3 0 3 0 3 0 3 0 3 0	2 4 2 4 8 4	COL812 COP745 ELL731 ELL735 ELL749 Streame ELL730 ELL730 ELL732 ELL738 ELL739	Synthesis of Digital Systems System Level Design and Modelling Digital System Design Laboratory Mixed Signal Circuit Design Analog Integrated Circuits Semiconductor Memory Design d Electives (JVL) in (Micro and Nano Devi I.C. Technology Micro and Nanoelectronics Micro and Nano Photonics Advanced Semiconductor Devices Compact Modeling of Semiconductor Devices	3 0 3 3 3 ces) 3 3 3 3 3 3	0 0 0 0 0	0	
ELL831 ELL832 ELL833	Selecte	VLSI, MEMS, a d Topics in IEC-I RF IC Design		embly	3 0 3 0 3 0	03 03 03	ELL744	Electronic and Photonic Nanomaterials d Electives (JVL) in (Embedded Intelligen	3	0	0	
ELL883 ELP831 ELV830 ELV831 JVD799 JVD812	Embedo IEC Lab Special	led Intelligence oratory-I Module in Low F Module in VLSI roject		sign	3 0 0 0 1 0 1 0 0 0 0 0	0 3 6 3 0 1 0 1 126 2412		Advanced Topics in Embedded Computing Reconfigurable Computing Advanced Digital Signal Processing Neuromorphic Engineering Introduction to Machine Learning Energy-Efficient Computing	3 3 3 3 3 3 3	0 0 0	0 0 0 0 0	

Sem.		Courses		Lecture courses	(Contac	ek	Credits		
Jenn.	(Numb	er, Abbreviated Title, L	-T-P, Credits)		Lec	L	Т	Р	Total	Cre
I	ELP736 Physical Design Laboratory (0-0-6) 3	ELL734 MOS VLSI Design (3-0-0) 3	PE-1 (3-0-0) 3	PE-2 (3-0-0) 3	3	9	0	6	14	12
II	PE-3 (3-0-0) 3	PE-4 (3-0-0) 3	PE-5 (3-0-0) 3	PE-6 (3-0-0) 3	4	12	0	0	12	12
Summer										
III (OR)		JVD811 Major Project-I (0-0-24) 12			0	0	0	24	24	
IV		JVD812 Major Project-II (0-0-24) 12			0	0	0	24	24	
III (OR)	PE-7 (3-0-0) 3	PE-8 (3-0-0) 3	JVD799 Minor Project (0-0-12) 6		2	6	0	12	18	12
IV		JVD811 Major Project-I (0-0-24) 12			0	0	0	24	24	
III (OR)		JVD811 Major Project-I (0-0-24) 12			0	0	0	24	24	
IV	PE-7 (3-0-0) 3	PE-8 (3-0-0) 3	PE-9 (3-0-0) 3	PE-10 (3-0-0) 3	4	12	0	0	12	12

Master of Technology in Robotics Interdisciplinary Programme

The overall credits structure

	Category	PC	PE		Τ		ос	Tota	al					
	Credits	42	6				3	51+ Bridg						
Program	Core							ELL794		nan-Computer Interface	3	0	0	3
Foundati	ional Concepts							ELL800		nerical Linear Algebra and Optimization				
JRL704	Robotics Lab			1	0	4	3			ngineering	3	-	0	-
ELL701	Mathematical Metho	ds Incontrol		3	0	0	3	ELL706		imization for Electrical Engineers	3	0	-	3
Dunamia	s and Control							MTL704		nerical Optimization	3	0	0	-
	Mechanics and Cont	rol of Doboto		3	0	0	3	MTL729		nputational Algebra and its Applications	3	0	0	-
	Degrees of Freedom a		Dovicos	2		0	2	ELL788		nputational Perception and Cognition	3	0	0	3
	0		Devices	2	0	0	2	COL783		tal Image Analysis	3	0	-	4.5
	ng/Cognition (any or							ELL715		tal Image Processing	3	0	2	4
	Principles of Autonom					2	4	COL772		ural Language Processing	3	0	_	4
COL770	Advanced Artificial In	ntellegence		3	0	2	4	MTL785		ural Language Processing	3	0	0	-
Sensing	and Perception							ELL720		anced Digital Signal Processing	3	-	0	-
-	Computer Vision			3	0	2	4	DSL711		sors & Transducers	3	0	0	-
ELL705	Stochastic Filtering a	and Identification	า	3	0	0	3			lytical Dynamics	3	0	-	3
Project	Ũ									amics of Multibody Systems	2	0	2	-
JRD891	Minor Project			0	0	4	2			chatronics Product Design	3	0	2	-
JRD892	Major Project Part-I			0	0	12				anced Mechanisms	2	0	2	
JRD892	Major Project Part-II			0	0		12			anced Robotics	2	0	2	-
JKD093				0	0	24	12	ELL700		ear Systems Theory	3	0	-	3
Bridge (#	BR: At least one of the	e following two,	but waiv	ed	for	pe	ople	MCL741		trol Engineering	3	0	2	
with prep	aration in both)							ELL702		linear Systems	3	0	v	3
COL671	Artificial Intelligence			3	0	2	4	ELL703		imal Control Theory	3	0	-	3
	Control Engineering-	.		3	1	0	4	ELL704		anced Robotics	3	0	-	3
	Control Theory and A			3	0	2	4	ELL729		chastic Control and Reinforcement Learning	,	0	0	-
	Total Credits						42	ELL767		chatronics	3	0	0	-
	Total Oreans						72	ELL801		llinear Control	3	-	0	-
Brogram	Electives							ELL802		ptive and Learning Control	3	0	0	-
				•	•	•	-	ELL803		del Reduction in Control	3	-	0	-
JRL880	Special Topics in Rol					0	3	ELL804		oust Control	3	0	0	-
JRL882	Special Topics in Rol					0	2	ELL805		worked and Multi-Agent Control Systems	3	0	0	3
JRV880	Special Module in Ro	DDOUCS-I		1	0	0	1	ELL806		deling and Control of Distributed	2	^	0	2
JRS799	Independent Study			0	3	0	3			ameter Systems	3		0	
ELL893	Cyber-Physical Syste	ems		3	0	0	3	ELL807	5100	chastic Control	3	0	0	3

Sem.			Courses			Lecture courses		Conta	ct h/wee	k	Credits
Jenn.		(Number, Al	bbreviated Title, L	-T-P, credits)		Cou Cou	L	Т	Р	Total	U.S.
I	JRL704 Robotics Lab (1-0-4) 3	ELL701 Mathematical Methods Incontrol (3-0-0) 3	MCL799 Mechanics and Control of Robots (3-0-0) 3	COL671 or ELL225/ MCL212 (3-0-2) 4		4	10	0	6	16	13
II	COL778 or COL770 (3-0-2) 4	JRL780 Computer Vision (3-0-2) 4	ELL705 Stochastic Filtering and Identification (3-0-0) 3	JR891 Minor Project (0-0-4) 2		3	9	0	8	17	13
ш	PE-1 (3-0-0) 3	PE-2 (3-0-0) 3	JRD892 Major Project-I (0-0-12) 6	JRL747 Degrees of Freedom and Constraints in Devices (2-0-0) 2	OC (3-0-0) 3	5	11	0	12	23	17
IV			RD893 Major Project-II (0-0-24) 12			0	0	0	24	24	12

Total = 51 + 4 (Bridge Course)

Courses of Study 2024-2025

ELL808	Advanced Tanica in Systems and Control	3	0	0	3
MTL811	Advanced Topics in Systems and Control Mathematical Foundation of Artificial Intelligence	-	0 0	0 0	ა ვ
COL770		3	0	-	4
ELL792	g	3	0	_	4 3
COL781		3	0	-	3 4.5
COL774	· · · · · · · · · · · · · · · · · ·	3	-	2	4.5 4
ELL784	Machine Learning	з 3	0	2	4 3
	Introduction to Machine Learning	-	-	-	°.
COL864	-pg	3	0	0	3
COL870	- P	3	0	0	3
ELL789	Intelligent Systems	3	0	0	3
ELL791	Neural Systems and Learning Machines	3	0	_	4
ELL795	Swarm Intelligence	3	0	0	3
ELL882	Large-Scale Machine Learning	3	0	0	3
ELL888	Advanced Machine Learning	3	-	0	3
ELL729		3	0	0	3
ELL787	Embedded Systems and Applications	3	0	0	3
COL788	Advanced Topics in Embedded Computing	3	0	0	3
ELL883	Embedded Intelligence	3	0	0	3
COL702	Advanced Data Structures	3	0	2	4
COL758	Advanced Algorithms	3	0	2	4
COL726	Numerical Algorithms	3	0	2	4
AIL721	Deep Learning	3	0	0	3
AIL722	Reinforcement Learning	3	0	0	3
COL785	Virtual and Augmented Reality	3	0	2	4
MCL709	Programming Robots with ROS	2	0	2	3
MCL798	Medical Robotics	2	0	2	3

Specialization Electives

Collabor	ative Robotics				
MTL768	Graph Theory	3	0	0	3
MTL763	Introduction to Game Theory	3	0	0	3
ELL805	Networked and Multi-Agent Control Systems	3	0	0	3
DSL782	Design for Usability	2	0	2	3
COL785	Virtual and Augmented Reality	3	0	0	3
Industria	I Robotics				
MCL783	Automation in Manufacturing	3	0	2	4
MCL710	Robotic Automation in Manufacturing	2	0	2	3
Rehabilit	ation and Medical Robotics				
MCL798	Medical Robotics	2	0	2	3
BML830	Biosensor Technology	3	0	2	4
BML741	Medical Device Design	2	0	4	4
ELL794	Human-Computer Interface	3	0	0	3
Autonon	nous and Intelligent Vehicles				
JRD891	Minor Project	0	0	4	2
JRD892	Major Project Part-I	0	0	12	6
JRD893	Major Project Part-II	0	0	24	12
MCL845	Advanced Robotics	3	0	2	4
ELL704	Advanced Robotics	3	0	0	3
CTL713	Connected and Autonomous Vehicles	3	0	0	3
CTLxxxx	Vehicle Telematics	3	0	0	3
JRL732	Aerial Robotics	3	0	0	3

Master of Public Policy Schools of Public Policy

The overall credits structure

Cate	egory	PC	PE	OE				Total					
Cre	dits	39	9	6				54					
Program	Core								SPL730	Science, Technology & Innovation	0		
SPL703	Researc	h Methods for P	ublic Policy		3	0	0	3		Policy and Agriculture	, .	, ,	, ,
SPL704	Introduc	tion to Public Po	licy and STI		3	0	0	3	SPL740	Casual Interfence and Impact Assessment	•	•	•
SPL705	Public Ir	nstitutions in Indi	a: Theory		3	0	0	3	SPL741	Socio-Economic Data Analysis	5	,	,
	and Pra	ctice	-						SPL750	Qualitative Research Methods for Public Policy			
SPL706	STI and	Sustainable Dev	velopment		3	0	0	3	SPL752	, , , , ,	Techs and the City - An urban policy perspective 3	, , , ,	, , , , ,
SPL707	Tools for	r Policy Analysis			3	0	0	3	SPL753	Urban Planning Practicum			
SPL708		s for Public Polic			3	0	0	3	SPL754	Geographical Information Systems (GIS)			
SPL709	•	es of Economics	for Public Pol	icy	3	0	0	3	00.00	for Public Policy	5	,	,
SPL779	Thesis-I				0	0	8	4	SPL781	Special Topics in Climate Change Policy			
SPL780	Thesis-I	I			0	0	28	3 14	SPL783	Special Topics in Natural Resource			
	Total Ci	redits						39		Management Policy	o ,	a ,	
									HSL781	Potential and Perils of the Digital Welfare	5	5	•
Program	In Elective	S							SPV791	Special Module on Ethics in Policy Making	, , , , , , , , , , , , , , , , , , , ,	, , , ,	
SPL711	Modellin	or Complex Ada	otive Systems		3	0	0	3	SPV792	Inclusive City and Accessibility Audit	,	5	, , , , , , , , , , , , , , , , , , ,
		y Analysis	, ,						SPV793		1 5	, , , , , , , , , , , , , , , , , , ,	, , , , , , , , , , , , , , , , , , ,
SPL712		ative Industrial F	Policy		3	0	0	3		Management of Natural Resources	0	5	0
SPL719	Public Ir	nterest Technolog	gies		3	0	0	3	SPV794	Special Module on Public Policy in Data,			· · · · · · · · · · · · · · · · · · ·
SPL720	Energy a	and Infrastructur	e Finance:		3	0	0	3		Communication and Computation	•	•	•
	A Public	Policy Lens							SPV795	Special Module on Public Policy for	· · · · · · · · · · · · · · · · · · ·		
SPL721	Perspec	tive on Climate	Change:		3	0	0	3		Technical Higher Education	0	5	5
	Implicati	ions for Policy	-						SPV796	Special Module on Public Policy for	· · · · · · · · · · · · · · · · · · ·		
SPL 722	Governa	ance Challenges	in Energy		3	0	0	3		Sustainable Habits and Livelihoods			
	Systems	s in Transition							SPV797	Scenario Design for Managing Uncertainty	a a a ,		° ° ° ,
SPL723	Underst	anding Public Po	olicy Making th	nrough	3	0	0	3	SPV798	Special Module on Public Policy in			
	Case St	udies	-							Transport and Infrastructure	•	•	•
SPL724	Electrici	ty Sector Reform	ns in the Rene	wables	3	0	0	3	SPV799	Special Module is Policy Studies	, ,		
	Era								SPL810	Selected Topics in Policy Studies	Selected Topics in Policy Studies 3	Selected Topics in Policy Studies 3 0	Selected Topics in Policy Studies 3 0 0

Sem.		Cours			Lecture courses		Credits			
Jenn.	(N	umber, Abbreviated	Title, L-T-P, Cred	lits)	Lec	L	Т	Р	Total	Cre
I	SPL704 Introduction to Public Policy and STI (3-0-0) 3	SPL706 STI and Sustainable Development (3-0-0) 3	SPL708 Statistics for Public Policy (3-0-0) 3	SPL709 Principles of Economics for Public Policy (3-0-0) 3	4	12	0	0	12	12
II	SPL703 Research Methods for Public Policy (3-0-0) 3	SPL705 Public Institutions in India: Theory and practice (3-0-0) 3	SPL707 Tools for Policy Analysis (3-0-0-0) 3	PE-1 (3-0-0) 3	4	12	0	0	12	12
Summer										
ш	PE-2 (3-0-0) 3	PE-3 (3-0-0) 3	OE-1 (3-0-0) 3	Thesis-I (0-0-8) 4	3	9	0	8	17	13
IV	OE-1 (3-0-0) 3	Thesis-II (0-0-28) 14			1	3	0	28	31	17

Total = 54

INDIAN INSTITUTE OF TECHNOLOGY DELHI THE HONOUR CODE

1 Entry No...... do hereby undertake that as a student at IIT Delhi : I will not give or receive aid in examinations; that I will not give or receive 1) unpermitted aid in class work, in preparation of reports, or in any other work that is to be used by the instructor as the basis of grading; and I will do my share and take an active part in seeing to it that others as well 2) as myself uphold the spirit and letter of the Honour Code. I realise that some examples of misconduct which are regarded as being in violation of the Honour Code include : Copying from another's examination paper or allowing another to copy from one's own paper; Unpermitted collaboration; Plagiarism; Revising and resubmitting a marked quiz or examination paper for re-grading without the instructor's knowledge and consent; Giving or receiving unpermitted aid on take home examinations; Representing as one's own work, the work of another, including (P) information available on the internet: Giving or receiving aid on an academic assignment under circumstances in which a reasonable person should have known that such aid was not permitted; and Committing a cyber-offence, such as, breaking passwords and accounts, sharing passwords, electronic copying, planting viruses, etc. I accept that any act of mine that can be considered to be an Honour Code violation will invite disciplinary action. Student's Signature..... Date..... Name..... Entry No.....



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