

**(i) Introduction of New Courses for PhD and IMP program:**

- a. CSIR-NML in Engineering Sciences for PhD and IMP
- b. CSIR-NIIST in Engineering Sciences for PhD
- c. CSIR-IICT in Engineering Sciences for PhD
- d. CSIR-NISTADS in Mathematical & Information Sciences for PhD
- e. CSIR-4PI in Physical Sciences for PhD
- f. CSIR-AMPRI in Engineering Sciences for PhD

**(a) Engineering Sciences at CSIR-NML (for PhD and IMP)**

Sl. No.	Course code	Course Title	L-T-P-C
1.	ENG(NML):1-871	Advanced Manufacturing	2-1-0-3
2.	ENG(NML):1-872	Science Management	2-0-0-2
3.	ENG(NML):1-873	Advanced Materials	2-0-0-2
4.	ENG(NML): 3-868	Advance Surface Characterization Techniques	2-0-2-4

**(b) Engineering Sciences at CSIR-NIIST for PhD**

Sl. No.	Course code	Course Title	L-T-P-C
1.	ENG(NIIST):1-101	Research Methodology	2-0-0-2
2.	ENG(NIIST):1-766	Mathematics for Engineers and Scientists	2-0-0-2
3.	ENG(NIIST):2-767	Advanced Materials Science and Engineering	2-0-0-2
4.	ENG(NIIST):2-768	Advanced Materials Characterization	2-0-2-3
5.	ENG(NIIST):2-769	Physical Metallurgy	2-0-0-2
6.	ENG(NIIST):3-770	Nanomaterials Science and Technology	3-0-0-3
7.	ENG(NIIST):3-771	Advanced Composite Materials	3-0-0-3
8.	ENG(NIIST):3-772	Advanced Ceramics Processing	3-0-0-3
9.	ENG(NIIST):3-773	Materials Chemistry	3-0-0-3
10.	ENG(NIIST):3-774	Light and Rare Earth Metals, Alloys and Composites	3-0-0-3
11.	ENG(NIIST):3-775	Polymers and Composites	3-0-0-3
12.	ENG (NIIST):3-776	Advanced Materials Processing	3-0-0-3
13.	ENG (NIIST):3-777	Advanced Functional Materials	3-0-0-3
14.	ENG (NIIST):3-778	Surface Science and Technology	3-0-0-3
15.	ENG (NIIST):3-779	Advanced Foundry Technology	3-0-0-3

**(c) Engineering Sciences at CSIR-IICT for PhD**

Sl.	Course No. *	Course Name	L-T-P-C
1	AcSIR-IICT-CSE-101	Research Methodology	2-0-0-2
2	AcSIR-IICT-CSE-201	Wireless Sensor Networks	2-0-0-2
3	AcSIR -IICT-CSE-202	Simulation of Computer Systems and Networks	2-0-0-2
4	AcSIR -IICT-CSE-203	Mobile and Pervasive Computing	2-0-0-2
5	AcSIR -IICT-CSE-301	Real Time Systems	2-0-0-2
6	AcSIR -IICT-CSE-302	Network Protocols	2-0-0-2

\* Course nomenclature to be updated as per AcSIR guidelines

**(d) Mathematical and Information Sciences at CSIR-NISTADS for PhD**

Sl.	Course No.	Core / Elective	Course Name	L-T-P-C
1	MIS-NISTADS-2-352	Program Core	Principle of Economics	1-0-0-1
2	MIS-NISTADS-2-353	Program Core	Social Studies of Science: An Introduction	1-0-0-1
3	MIS-NISTADS-3-351	Elective	Introduction to Public Health Policy	x-x-x-x
4	MIS-NISTADS-3-352	Elective	Science, Technology and Innovation Strategy	1-0-0-1
5	MIS-NISTADS-3-353	Elective	An introduction to Probability and Statistics	1-0-0-1
6	MIS-NISTADS-3-354	Elective	Foundations of Mathematics	1-0-0-1
7	MIS-NISTADS-4-101	Common, Core	Research Proposal	0-0-4-2
8	MIS-NISTADS-4-102	Common, Core	Review Article	0-0-4-2
9	MIS-NISTADS-4-103	Common, Core	CSIR 800	0-0-8-4

\* L-T-P-C for MIS-NISTADS-3-351 to be updated as per AcSIR guidelines

**(e) Physical Sciences at CSIR-4PI for PhD**

Sl.	Course code	Course Title	L-T-P-C
1.	PHY(CMMACS)-2-248	Climate Dynamics and Modeling	3-0-0-3

**(f) Chemical Sciences at CSIR-AMPRI for PhD**

Sl.	Course code	Course Title	L-T-P-C
1.	CHE(AMPRI)1-001	Research Methodology	1-0-0-1
2.	CHE(AMPRI)1-002	Analytical Tools and Instrumentation	1-0-0-1
3.	CHE(AMPRI)1-004	Basic Chemistry for Interdisciplinary sciences	1-0-0-1
4.	CHE(AMPRI)1-005	Introduction to Nanoscience and Nanotechnology	1-0-0-1
5.	CHE(AMPRI)2-002	Advanced Inorganic Chemistry	2-0-0-2
6.	CHE(AMPRI)2-004	Advanced Analytical Chemistry	2-0-0-2
7.	CHE(AMPRI)2-018	Advanced Materials Characterization Techniques	2-0-0-2
8.	CHE(AMPRI)2-024	Sol-gel chemistry	2-0-0-2
9.	CHE(AMPRI)2-026	Green Chemistry	2-0-0-2
10.	CHE(AMPRI)2-101	Environmental Science	4-0-0-4
11.	CHE(AMPRI)2-102	Environmental Chemistry	2-0-0-2
12.	CHE(AMPRI)3-056	Natural Products and Drug Discovery	2-0-0-2
13.	CHE(AMPRI)3-101	Corrosion and Corrosion Protection	2-0-0-2
14.	CHE(AMPRI)3-102	Nano Science and Engineering	2-0-0-2
15.	CHE(AMPRI)3-103	Functional and Smart Materials	2-0-0-2
16.	CHE(AMPRI)3-104	Microfluidics and Microseparation	2-0-0-2
17.	CHE(AMPRI)3-105	Unit Operations in Environmental Chemistry	2-0-0-2
18.	CHE(AMPRI)3-106	Waste Utilization and Value Addition	2-0-0-2
19.	CHE(AMPRI)3-107	Industrial Effluent Treatment & Disposal	2-0-0-2
20.	CHE(AMPRI)3-108	Advanced Soil Science	2-0-0-2

**ANNEXURE A-1**  
**MoM 10<sup>th</sup> Senate, 4 April 2014**

<b>Sl.</b>	<b>Course code</b>	<b>Course Title</b>	<b>L-T-P-C</b>
21.	CHE(AMPRI)3-109	Environment Assessment, Monitoring, Protection and Management	2-0-0-2
22.	CHE(AMPRI)3-110	Methods and Techniques for Water resources Development and Management	2-0-0-2
23.	CHE(AMPRI)4- 001	Project Proposal Writing	1-0-2-2
24.	CHE(AMPRI)4- 002	Review Article	1-0-2-2
25.	CHE(AMPRI)4- 003	CSIR-800 Project Activity	1-0-6-4

**(ii) Modification of Courses**

- a. CSIR-NML in Engineering Sciences
- b. CSIR-4PI in Mathematical & Information Sciences
- c. CSIR-NISTADS in Mathematical & Information Sciences

**a. CSIR-NML in Engineering Sciences**

**i. Change of Title of Existing Course: ENG(NML):3-864**

ENG(NML):8-864 from Thin Film Technology to "Coating Technology".

**ii. Splitting up of the existing course Thermodynamics & Kinetics of materials & Processes: ENG(NML):1-837**

ENG(NML):1-837 (compulsory for Integrated M.Tech-Ph.D.): Thermodynamics & Kinetics of materials & Processes (3-1-0-4) has been split up as:

ENG(NML):1-837 : Advanced Metallurgical Thermodynamics (2-0-0-2), and  
ENG(NML):1-870: Advanced Metallurgical Kinetics (2-0-0-2)

**b. Physical Sciences at CSIR-4PI**

Course nomenclature for **GNSS (Global Navigation Satellite Systems) Remote Sensing and Geodesy** is modified as:

**PHY(CMMACS)-3-247: GNSS (Global Navigation Satellite Systems) Remote Sensing and Geodesy (2-1-0-3)**

**c. Mathematical and Information Sciences at CSIR-NISTADS**

**ANNEXURE A-1**  
**MoM 10<sup>th</sup> Senate, 4 April 2014**

Sl. No.	Course No.		Course Title	L-T-P-C	Modification	Previously (Senate approved)
1	MIS-NISTADS-1-101	Common, Core	Quantitative Research Methodology	1-1-0-2	LTPC	
2	MIS-NISTADS-2-346	Program Core	Introduction to Qualitative Research	1-0-2-2	LTPC	
3	MIS-NISTADS-2-347	Program Core	Indian Economy & Policy	1-0-0-1	LTPC	
4	MIS-NISTADS-2-348	Program Core	Innovation Systems and Development	1-0-0-1	LTPC	
5	MIS-NISTADS-2-349	Program Core	Introduction to History of Science	1-0-0-1	LTPC	
6	MIS-NISTADS-2-351	Program Core	Science and Technology Systems- India and the World	1-0-0-1	LTPC	
7	MIS-NISTADS-2-350	Program Core	Science, Technology and Innovation Policy	1-0-0-1	LTPC/ Title	Science & Technology Policy
8	MIS-NISTADS-3-346	Elective	Trade & Technology	1-0-0-1	LTPC/ Title	
9	MIS-NISTADS-3-347	Elective	Enterprise Development through Value Chains Analysis	1-0-0-1	LTPC/ Title	
10	MIS-NISTADS-3-348	Elective	Intellectual Property Rights in the Context of Research, Innovation and Development	1-0-0-1	LTPC/ Title	
11	MIS-NISTADS-3-350	Elective	Resource Planning & Policy (RPP)	1-0-0-1	LTPC/ Title	
12	MIS-NISTADS-3-349	Elective	Global Warming: History, Trends and Politic	1-0-0-1	LTPC/ Title	Environmental History

**(iii) PHFI courses for 2<sup>nd</sup> and 3<sup>rd</sup> semesters - Clinical Research**

<b>Sl. No.</b>	<b>Course No.</b>	<b>Course Title</b>	<b>L-T-P-C</b>
1	MD201	Medical writing - Proposal, Protocol development, and Report writing	1-1-2-3
2	MD106	Basics in data management	2-1-2-4
3	MD202	Pharmacovigilance and drug regulation	2-1-0-3
4	MD108	Medicinal and natural product Chemistry	3-0-0-3
5	MD203	Advanced data management	1-1-2-3
6	MD204	Advanced statistics	1-1-2-3
7	MD205	Drug discovery	2-2-0-4
8	MD206	Systematic reviews and meta-analysis	1-1-2-3
9	MD110	Project Management and Communication	2-1-0-3
10	MD207	Advanced epidemiology	1-1-2-3
11	MD208	Genetic Epidemiology	2-1-0-3
12	MD209	Economic evaluation	1-1-2-3
13	MD210	Pharmaceutical biotechnology	2-0-2-3
14	MD211	Medical innovation	2-0-2-3
15	MD212	Open Electives	
16	MD107	Laboratory sciences *	2-0-2-3

\* Not being placed for ratification at 10th Senate meeting