	NATIONAL INSTITUTE OF TEC								
	Office of the Dean (R&C) LIST OF ONGOING PROJECTS								
File No.		Amount Sanctioned	Completed/ Ongoing	UC Sent/Not					
2005	2005 to 2008								
1	Fund for improvement of S&T infrastructure in universities and higher educationa institution (Sanctioned by DST(SERC Division)) Sanction Order No: SR/FST/ETI-201/2007. Dt.06.03.2008. Period: 5 years File Name: NITC/DEAN (C&SR)/DST/FIST/CSED/08	Mr. Abdul Nazeer CSED	33,60,000						
2009-	10								
2	DST-FIST Programme "To Strengthen the Research and post graduate in area of power quality and II Energy Research in EED". (Sanctioned by DST) Sanction Order NO:SR/FST/ETI-049/2008. Dt.12.01.2009 File No. NITC/DEAN (C&SR)/DST/FIST/EED/09 Period: 5Years	Dr.S.Ashok, EED	1,00,00,000/-						
2010-	11	•							
3	HPCL Project "Investigation on fuels catalytic nano particles additives' (Hindustan Petroleum Corporation Ltd-HPCL) Sanction Order No: Letter from HPCL Period: 3 Years File Name: NITC/DEAN (C&SR)/HPCL/VS&CBS/SNST/2010	Dr.C.B.Sobhan, Sajith.V SNST	1,20,00,000/-						
4	Molecular and Functional Characterization of Putative ZzRI Resistance gene from Zingiber Zerumbet, A Wild Relative of Ginger(Sanctioned by DBT) Sanction Order No: BT/PR13248/GBD/27/232/2009 Dt 14/1/09 Period: 3 Years File No: NITC/DEAN (C&SR)/DBT/RAN/SOBT/2010	Dr.R.Aswati Nair, SOBT	16,21,000/-						
5	Consultancy Work From Tata Steel Ltd. (Sanctioned by Tata Steel Ltd) Sanction Order NO. SR/SO/BB/038/2009 F.No.NITC/DEAN(C&SR)/TSL/CONSULTANCY /SNST/2010 Period: 3Years	Sri.Shijo Thomas, SNST	20,00,000/-						

6	DST Fast Track Project "Molecular Cloning and Characterization of Terpene Synthase involved in Zerumbone Biosynthesis from Zingiber Zerumber" (Sanctioned by DST) Sanction Order No: SR/FT/LS-052/2009 dated 28-07-2009 File Name: NITC/DEAN (C&SR)/DST/FT/RAN/SOBT/2010 Period: 3 Yrs.	Dr.R.Aswathi Nair, SOBT	15,82,000/-	
7	ARDB "DSMC Simulation of solid rocket exhaust Plums" (Sanctioned by Aeronautics R&D Board-ARDB) Sanction Order No.DARO/08/1041566/M/I F.No.NITC/DEAN(C&SR)DARO/DRDO/ARDB/SPS/SNST/2010 Period: 3 Yrs.	Dr.Sarith.P.Sathian/Dr V Sajith, SNST	18,31,000/-	
8	DST Project entitled "Characterizing the Interactions of Chlorpromazine with the Mitotic Kinesin Eg5 and Tubulin: Implications in Cancer Chemotherapy" (Sanctioned by DST) Sanction Order No:SR/SO/BB-13/2010, Dt:19-10-2010 F.No.NITC/DEAN(C&SR) DST/KR/SOBT/2010 Period: 3 years	Dr.Rathinasamy.K SOBT	38,05,068/-	
9	DRDO Project "Investigation of Distributed Generation System Integration Strategies on a Laboratory Scale Microgrid" (Sanctioned by Defence Res&Dev Organ-DRDO) Sanction Order No.ERIP/ER/1006010/M/01/1268 dt.02-11-2010 Period: 3 Years F.No.NITC/DEAN(C&SR)/DRDO/DERIPR/EPC/EED/2010	Dr.Elizabeth.P.Cheriyan EED	7,00,000/-	
10	DBT Project "Identification and Characterisation of Phytochemicals from Indian Medicinal Herbs for their Potential Application in Cancer Chemotherapy" (Sanctioned by DBT) Sanction Order No.BT/PR14142/PBD/17/696/2010dt.15-02-2011 Periods: 2 Years File: No. NITC/DEAN(C&SR)/DBT/KR/SOBT/2011	Dr.K.Rathinasamy SOBT	19,56,000/-	
11	DRDO Project "Design and Development of Electro-magnetically Driven Miniature Cryo-cooler for IR Sensor Array – Phase I". (Sanctioned by DRDO) Sanction Order No. ERIP/ER/1006012/M/01/1302 dt.23-03-2011 Period: 2 years F.No.NITC/DEAN(C&SR)/DRDO/DER&IPR/BTR/MED/2011	Dr.Biju.T.Kuzhiveli MED	27,50,000/-	

2011-12

12	Coir Board Project "Use of Coir Pith for Airport Soft Ground Arrester System" (Sanctioned by Central Coir Research Institute) Sanction Order No:CCR1/RES/CP-NITC/2011/3797 dt 31/03/2011 Period: 3 years F.No.NITC/DEAN(C&SR)/CB/MSME/UCPASGAS/MVLRA/CED/2011.	Dr.M.V.L.R.Anjaneyulu CED mvlr@nitc.ac.in	1,13,12,400/-	
13	Coir Board Project "Study of Long Term Performance of Pavement Reinforced with Coir Geotextiles" (Sanctioned by Central Coir Research Institute) Period:3 years F.No.NITC/DEAN(C&SR)/CB/MSME/SLTPPRCG/MVLRA/CED/2011.	Dr.M.V.L.R.Anjaneyulu CED	2,68,11,400/-	
14	DBT Project "Combination therapy in ischemic stroke: Evaluation of Synergistic Neuro protective effects of Paroxetine and Everolimus.(Sanctioned by DBT) Sanction Order No.BT/PR15112/GDB/27/323/2011 dt.16-3-11. Period:3 years File No. NITC/DEAN(C&SR)/DBT/FGK/SOBT/2011	Dr.Rajanikant.G.K, Asst. Professor, Biotechnology	13,92,000/-	
15	DBT Project "Establishment of Bioinformatics Infrastructure Facility for Biology Teaching through Bioinformatics" (Sanctioned by DBT) Sanction Order. No.BT/BI/25/001/2006 dt.02-03-2011 Period: 1Year File No: NITC/DEAN(C&SR)/DBT/BIF-BTBI/RGK/SOBT/2011	Dr.Rajanikant.G.K, Asst. Professor, Biotechnology	20,00,000/-	
16	KSCSTE Project "Seismic evaluation of existing multi-storey building in Kozhikode District" Council Sites (Sanctioned by KSCSTE) Sanction Order No. (T) 032/ETP/2011/KSCSTE dt.07-05-2011. Period: 3 years File No: NITC/DEAN(C&SR)/KSCSTE/PN/CED/2011	Dr.Praveen Nagarajan, Asst.Professor CED	9,99,000/-	
17	DST Project "Cavity enhanced absorption spectroscopy for trace gas pollutant monitoring" (Sanctioned by DST) DST/MKRV/PHYSICS/2011 Sanction Order No.SR/S2/LOP-0008/2010(C) & SR/S2/LOP-0008/2010(G) dt.8-07-2011. Period: 3 years File No: NITC/DEAN(C&SR)/DST/MKRV/PHYSICS/2011	Dr.M.K.Ravi Varma, Assistant Professor, Department of Physics.	24,26,138/-	

18	DST Project "Development of Pro-fluorophore scaffolds to probe peptide aggregation and conformational transitions" (Sanctioned by DST) Sanction Order No: SR/FT/CS-80/2010©&SR/FT/CF-80/2010(G) Dated: 13/07/2011 Period: 3 Years File Name: NITC/DEAN(C&SR)DST/CL/CHEMISTRY/2011	Dr.Lakshmi, Assistant Professor, Deparatment of Chemistry	20,70,000/-	
19	DST Project "PUFA Therapy ameliorates congnitive impairment and Miochodrial dysfunction in caenohabdities elegance model of Parkinson Disease" (Sanctioned by DST) Sanction Order No: SR/CSI/PDF-07/2011, dated: 17/11/2011 Period:2 Years File No: NITC/DEAN(R&C)/DST/CSI/PDF/SK/2011	Dr.Shashikumar (PI) Dr. Rajanikant(Guide) SOBT	12,48,000/-	
20	DRD Project "Productivity Monitoring and wage Analysis Tool for NREG Works in Kerala.(Sanctioned by Ministry of Rural Development) Sanction Order No:K-11014/2/2010-NGMRSGA(2), dt:7/3/2011 Period: 3 Years File No: NITC/DEAN(R&C)/DRD/VMP/MED/2011	ioned by Ministry of Rural Development) No:K-11014/2/2010-NGMRSGA(2), dt:7/3/2011 Associate Professor, MED		
2012-	13			
21	CSIR Project "Electron C Structure Studies of Adsorption of Unsaturated Hydrocarbons on Metal Catalysts" (Sanctioned by Council of Scientific and Industrial Research-CSIR) Sanction Order No: 01(2543)(11)/EMR.11-12, Dated 12.12.2011. Period: 3 Year File No: NITC/DEAN(R&C)/CSIR/EMR/RC/PHYSICS/2012	Dr.Raghu Chatanathodi Assistant Professor Department of Physics	10,91,000/-	UC&As for 2012-13 sent on 23.09.13
22	ICMR Project "Oleamide as Novel Neuro Protectant Against Stroke" (Sanctioned by Indian Council of Medical Research-ICMR) Sanction Order No: 58/15/2010-BMS- Dated:23/02/2012 File Name: NITC/DEAN(R&C)/ICMR/GKR/SOBT/2012 Period:3 Years	Dr.Rajanikant.G.K Assistant Professor School of Biotechnology	10,26,536/-	
23	KSCSTE Project "Development of Intelligent Robot for fault Diagnosis of Power lines",(Sanctioned by KSCSTE) Sanction Order No: (P)213/2012/KSCSTE, dated 01/03/12 File Name; NITC/DEAN(R&C)/KSCSTE/ETP/SA/EED/2012 Period:3 Years	Dr.S.Ashok Professor EED	11,00,000/-	

24	KSCSTE Project "Transcript Profiling of Differentially Expressed Gene(s) involved in the downstream steps leading to Artemisinin Biosynthesis on GA3 Induction" (Sanctioned by KSCSTE) Sanction Order No:292/2012/KSCSTE, dated 26.03.2012 File No: NITC/DEAN(R&C)/KSCSTE/IPB/RAN/SOBT/2012 Period: 3 Years	Dr.R.Aswati Nair Assistant Professor, School of Biotechnology	16,00,000/-	
25	KSCSTE Project "Experimental investigations for potential use of coir pith in making value added products" (Sanctioned by KSCSTE) Sanction Order No(P)154/2012/KSCSTE Dt: 14.02.12 Period: 2 Years File No: NITC/DEAN(R&C)/KSCSTE/SC/CED/2012	Dr.S.Chandrakaran Professor CED	3,79,000/-	
26	DST Women Scientists Scheme Project "Novel triazole bridged metalloporphyrins formed via click chemistry: Comparative DNA binding and cleavage studies" (Sanctioned by DST) File NO: NITC/DEAN(C&SR)/DST/WSS/SSS/DCH/2012	Dr.S.Sujatha PI, Department of Chemistry sujith@nitc.ac.in	23,60,000/-	
27	DST Fast Track Project "Novel functionalized Porphyrinic coordination Arrays, Polymers and Frameworks: Synthesis and properties" (Sanctioned by DST) Sanction Order No.SR/FT/CS-25/2011 dt.07.05.2012 File No: NITC/DEAN(R&C)/C.A.K/SR/FT/CS-25-2011(Period: 3 Yrs.)	Dr.C.Arun Kumar Assistant Professor Chemistry	21,80,000/-	
28	Fast Track Scheme for Young Scientist Project "Development of Composite Dielectric Materials for high energy storage (super-capacitor) applications" (Sanctioned by DST) Sanction Order No: SR/FTP/ETA/86/2010, Dt: 15.05.12 Period: 3 Years File Name: NITC/DEAN(R&C)/FTP/TKS/EED/2012	Dr.T.K.Sindhu Assistant Professor EED	20,90,000/-	
29	DST Project "Tunerable Tierarchial Zeolites using Polymer Maro templates for the chemical synthesis.(Sanctioned by DST) Sanction Order No:SR/SI/OC-04/2011, Dt: 15.05.2012 Period: 3 Years File No: NITC/DEAN(R&C)DST/GU/DCH/2012	Dr. G. Unnikrishnan Chemistry	50,63,000/-	

30	Research Project "A theoretical study on the enzymatic catalysis by methane mono- oxygenase: Designing of biomimetic catalysis for the conversion of methane to methanol" (Sanctioned by Science and Engineering Research Board-SERB) Sanction Order No: SR/FT/CS-42/2011, Dt: 06.06.2012 Period: 3 Years File No: NITC/DEAN(R&C)/SR/FT/CS-42/SDe/2012	Dr.Susmitha De Principal Investigator Chemistry	14,50,000/-	
31	DST Project "Design of Uranium Based Catalyst for Activation and Functionalization: A Computational Quantum Mechanical Study" (Sanctioned by DST) Sanction Order No: SERB/F/1788/2012-11, Dt: 27.06.2012 Period: 3 Years File No: NITC/DEAN (R&C)/SR/FT/CS-121/PP/CH/2012	Dr. P. Parameswaran Chemistry	25,50,000/-	
32	DST Project "Nonlinear Analysis of EEG signals of patients with Alzheimer's disease' (Sanctioned by DST) Sanction Order No: SR/FTP/PTA-102/2010, Dt: 19.07.12 Period: 3 Years File No: NITC/DEAN(R&C)/DST/SDP/EED/2012	Ms. Subha D. Puthenkatil EED	17,95,000/-	
33	DBT Project "Design and in Vitro Evaluation of the Neuro Protective effects of HOF-Prolyl Hydroxylase Inhabitors against Ishemic Stroke" (Sanctioned by DBT) Sanction Order No: BT/PR13950/MED/30/305/2010/, Dt: 16.03.2012 Period: 3 Years File No: NITC/DEAN(R&C)/DBT/RGK/SBT/2012	Dr. Rajanikant G. K. SOBT	50,19,000/-	
34	KSCSTE Project "Low Density Polyethylene/nanochitosan biodegradable films for food packaging applications" (Sanctioned by KSCSTE) Sanction Order No: 45/C/2012/KSCSTE, Dt: 18.09.2012 Period: 2 Years File No: NITC/DEAN(R&C)/KSCSTE/SA/CHEMISTRY/2012	Dr. Sujith A Chemistry	11,60,000/-	
35	KSCSTE Project "Development of low cost polymer electrolyte from cis 1,4, polysoprene for energy storage applications" (Sanctioned by KSCSTE) Sanction Order No: 45/C3/2012/KSCSTE, Dt: 24.09.2012 Period: 2 Years File No: NITC/DEAN(R&C)/KSCSTE/PP/PHYSICS/2012	Dr. P. Pradeep Physics	15,70,000/-	

36	CSIR Project "A genitics Approach towards Understanding the function of chaperonin CCT Complex using Yeast Saccharomyces as a Model System" (Sanctioned by CSIR) Sanction Order No: 37(1571)/12/EMR-II, Dt: 17.10.2012 Period: 3 Years File No: NITC/DEAN(R&C)/CSIR/AK/SOBT/2012	Dr. M. D. Anaul Kabir SOBT	12,00,000/-	
37	Project "Fast Track Scheme for Young Scientist-"Assessment of Effectiveness of NH-47 Bye Passe Road in Coimbatore in Congestion Relief and Level of Service Improvement in traffic flow on NH-47 in Coimbatore city using Microscopic Simulation Techniques" (Sanctioned by DST) Sanction Order No: SR/FTP/ETA-57/2011, Dt: 11.09.2012 Period: 3 Years File No: NITC/DEAN(R&C)/SERB/SR/FTP/ETA-57/2011	Dr. K. Krishnamoorthy CED	6,24,000/-	
38	DST Project "Biodegradability enhancement of Low density polyethylene by using bipolymer nano particles" (Sanctioned by DST) Sanction Order No: SR/FT/CS-172/2011, Dt: 04.12.2012 Period: 3 Years File No: NITC/DEAN(R&C)/SR/FT/CS-172/2011/2012	Dr. Sujith A Chemistry	25,20,000/-	
39	NRB-DRDO Project "Design and Development of a protocol stack for Under Water Acoustic Sensor Networks" (Sanctioned by DRDO) Sanction Order No: DNRD/05/4002/NRB, Dt: 22.03.2013 Period: 3 Years File No: NITC/DEAN(R&C)/DNRD/NRB/AVB/2013	Dr. A. V. Babu Asso Professor ECED	30,05,000/-	1st year UC sent on 14.8.13
40	DST Project "Antibiotics Removal from Waste Water using membrane Photocatalytic Slurry Reactor System reg-(Sanctioned by DST) Sanction Order No: SR/FTP/ETA/122-2011, Dt: 18.12.2012 Period: 3 Years File No: NITC/DEAN(R&C)/DST/SMK/2013	Dr. S. Madhava Kumar Asst Professor CED	21,80,000/-	
41	Project."Investigation on bio-hydrogen production by Thermo-chemical method in fluidized bed gasifier under catalytic support and its Utilization"(Sanctioned by Ministry of New and Renewable Energy-MNRE) Sanction Order No: 103/181/2010-NIT, Dt: 20.02.2013 File No: NITC/DEAN(R&C)/MNRE/NTD/CM/MED/2013 Period-30 Months	Dr. C. Muraleedharan P.I Professor- MED	34,53,450/-	

42	Project."Investigation on absorption of Fluoride from water using Nanomaterials"(Sanctioned by KSCSTE) Sanction Order No: 254/2013KSCSTE, Dt: 23.02.2013 Period-2 Year File No: NITC/DEAN(R&C)/KSCSTE/SGT/CED/2013	Dr. Santosh G Thampi - Asso Proffesor CED	14,64,000/-	
43	Development of a model framework for land use based Estimation and Prediction of solid waste Generation in small/medium scale towns in India(Sanctioned by Human Settlement Management Institute-HSMI) HSMI/R&D/2012-13 Dated: 05/04/2013 Period: 18 Months File Name: NITC/DEAN(R&C)/HSMI/HUDCO/R&D/PPA/ARC-2013		20,16,000	
44	CSIR Projecr: titled 'Poly (3, 4ethylendioxthiophene) / Poly(methyl methacrylate) core-shell nanospheres for the fabrication of transparent and conductive thin films'-reg (Sanctioned by Council of Scientific and Industrial Research-CSIR) Sanction Orer No: 02(0129)/13/EMR-11 Dated 12/04/2013 Period: 36 Months File Name: NITC/DEAN(R&C)/ERD/AS/CSIR/2013	Dr.Sujith A Assistant Professor Chemistry	7,64,000 2,00,000 2,00,000 11,64,000	
45	Research Project "Development of bistable memory devices based on organic semiconductors" (Sanctioned by DST-SERB) Sanction Order No: SR/FTP/PS-132/2011, Dt: 23.05.2013 Period: 3 Years File No: NITC/DEAN(R&C)/SERB(DST)/VSR/PHYSICS/2013-14	Dr.Vari Sivaji Reddy Assistant Professor Physics	21,84,000	
46	Research Project Fast Track Scheme for Young Scientist entitled "Experimental and Deterministic model studies in regeneration of microbial biosorbents after heavy metal desorption" (Sanctioned by DST-SERB) Sanction Order No: SERC/ET-0356/2012 DT. 4.3.13(SB/FTP/ETA-356/2012, Dt: 24.05.2013) Period: 3 Years File No: NITC/DEAN(R&C)/SERB/NS/CHED/2013-14	Dr. N.Selvaraju Assistant Professor Department of Chemical Engineering	8,82,000	

47	Centre for Transportation Research: "Release of grant to 16 Institutes under the new Plan of Establishment of 50 Centres of Excellence for Training and Research in Frontier Areas of Science & Technology for the Year 2013-14" (Sanctioned by Sanction Order No: 5-6/2013-TS-VII/TS VII, Dt: 08.05.2013 Period: 1 Year File No: NITC/DEAN(R&C)/MHRED/DHE/MVLRA/CED/2013-14	Dr.M.V.L.R.Anjaneyulu, Professor CED	1,00,00,000	
48	BRNS Project "Development of low cost elastomeric fullerene derivatives using electron and gamma irradiation for organic electronic application" (Sanctioned by BRNS) Sanction Order No: 2013/34/5/BRNS/0443, Dt: 15.05.2013 Period: 1 Year (2013-2014) File No: NITC/DEAN(R&C)/BRNS/PP/PHYSICS/2013-14	Dr.P.Pradeep Professor Physics	19,30,800	
49	DST Project "Rational Design and Syntheses of Metalloporphyrin- Lanthanoid Hybrid Materials for Photophysical and DNA Binding/Cleavage Studies" (Sanctioned by DST) Sanction Order No.SB/EMEQ-016/2013, Dated 09-07-2013 Period: 4 Years File No: DEAN(R&C)/SERB/DST/CA/CHEMISTRY/2013	Dr.C. Arun Kumar Assistant Professor Chemistry	43,66,000	
50	A Research Project entitled "Photo-switchable K+ lon Channel Blockers: A computational Quantum Mechanical Investigation of the Blocking Action and Design of Efficient Channel Blockers" (Sanctioned by Ministry of Science and Technology) Sanction Order No. DST/INSPIRE Faculty Award/2012 dated 1.2.2013 Period: 5 Years File No: NITC/DEAN(R&C)/IFA/DST/S.De/2013	Dr.Susmitha De Principal Investigator Chemistry(INSPIRE FACULTY, CHEMISTRY)	35,00,000	
51	KSCSTE Project "Comprehensive Computational Analysis of Anti-diabetic Phytotherapeutics of Indian Origin" (Sanctioned by KSCSTE) Sanction Order No. 14/Imsilico-KBC/2013/KSCSTE dated 21.08.2013 Period: Two Year File No. NITC/DEAN(R&C)/KSCSTE/RGK/SOBT/2013	Dr. RAJANIKANT G K Principal Investigator, Associate Professor, SOBT.	14,42,000/-	
52	DST Project: "Inhibition of mitochondrial Dynamin related protein-1 activity confers neuroprotection against ischemia" (Sanctioned by DST) Sanction Order No. BT/PR4660/MED/30/789/2012 dated	Dr. RAJANIKANT G K Principal Investigator, Associate Professor, SOBT (Dr.Rathinasamy K, Co-PI)	35,14.000/-	

53	ESD Project "Design and Implementation of Secure Communication System for Reduced Complexity" (Ministry of Communication & Information Technology, Department of Electronics & Information Technology (E-Security Division) Sanction Order No. No.12(16)2012-ESD dated 06.08.2013. Period 2 years. File No. NITC/DEAN (R&C)/ESD/DPP/ECED/2013	DR. DEEPTHI P P, Principal Investigator, Asst. Professor, ECED	38,88,000/-	
54	KSCSTE Project "Flexible Nanomaterial Doped Polymer Dispersed Liquie (Crystal (PDIC) Devices for Switchable window Applications". (Sanctioned by KSCSTE) Sanction Order No. 492/2013/KSCSTE dated 5.4.2013 Period: 3 Years. File No. NITC/DEAN (R&C)KSCSTE/NJ-NS/2013	Smt. NIMMY JOHN V (Principal Investigator) & Dr. N. Sandhyarani, SNST (Mentor)	15,96,000/-	
55	DST(SERB) Project: Ruthenium(II), Osmium(II) and Gold(III) alkaloids: Active targets for DNA ineercalation ineeractions". (Sanctioned by DST) Sanction Order No. SB/FT/CS-050/2012 dt. 12.09.2013 Period: 3 Years File No. NITC/DEAN(R&C)/DST/SERB/SV/CHEMISTRY/2013	Dr. SUNI VASUDEVAN, Asst. Professor, Chemistry (Principal Investigator)	26,00,000/-	
56	SERB(DST) Project: "Transparent, flexible and conducting electrodes based on graphene-nanometal hybrids" (Sanctioned by DST) Sanction Order No.SR/FTP/PS-128/2012 dated 17.09.2013 Period: 3 Years File No. NITC/DEAN(R&C)/DST/SERB/AAA/PHY/2013	Dr. AJITH A. ANAPPARA, Asst. Prof., Physics (PI)	11,10,000/-	
57	SERB(DST) Project: "High energy density photochemical fuels based on nanomaterial hybrids" (Sanctioned by DST) Sanction Order No.SR/NM/NS-1069/2012(G) dated 07.08.2013 & 18.09.2013 Period: 3 Years File No. NITC/DEAN(R&C)/DST/AAA/PHY/2013	Dr. AJITH A. ANAPPARA, Asst. Prof., Physics (PI)	44,25,000/-	

^{*}List of files/sheet-2