

GFR 12 – A
[(See Rule 238 (1))]
UTILIZATION CERTIFICATE (UC) FOR THE YEAR 2022-23
in respect of *RECURRING*
as on 31st March, 2023 to be submitted to SERB
Is the UC *Provisional/Audited*
(To be given separately for each financial year ending on 31st March)

1. Name of the grant receiving Organization : Indian Institute Of Technology Bombay.
2. Name of Principal Investigator(PI) : **Dr. Siddhartha Duttgupta**, Dept. of Electrical Engineering.
3. SERB Sanction order no. & date : **CRG/2021/000722** Dtd. 12.05.2022
4. Title of the Project : **Electrochemical discharge machined serpentine micro-channels in fused quartz for photo-catalytic**
5. Whether recurring or non-recurring grants : **RECURRING**
6. Grants position at the beginning of the Financial year
 - (i) Carry forward from previous financial year : Nil
 - (ii) Others, If any : NIL
 - (iii) Total : 0.00

7. Details of grants received, expenditure incurred and closing balances: (Actuals)

Unspent Balance of Grants received previous years [figure as at Sl. No. 7(iii)]	Interest Earned thereon	Interest deposited back to the SERB	Grants received during the year			Total Available funds (1+2-3+4)	Expenditure incurred	Closing Balances (5-6)
1	2	3	4			5	6	7
			Sanction No. (i)	Date (ii)	Amount (iii)			
0 0 0	15508	NIL	CRG/2021/000722	12.05.2022	9,81,230	9,96,738	1,71,025	8,25,713

Component wise utilization of grants:

Grants-in-aid- General	Grant-in-aid-creation for capital assets	Total
1,71,025/-	0	1,71,025/-

Details of grants position at the end of the year

- (iv) Balance available at end of financial year : Rs.8,25,713/-
- (v) Unspent balance refunded to SERB (If any) : NIL
- (vi) Balance (Carried forward to next financial year) if applicable : Rs.8,25,713/-

RECEIVED
 ACCOUNTS SECTION
 SERB
 12.05.2022

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[(See Rule 238 (1))]
UTILIZATION CERTIFICATE (UC) FOR THE YEAR 2022-23
in respect of **RECURRING**
as on **31st March, 2023** to be submitted to **SERB**
Is the UC **Provisional/Audited**
(To be given separately for each financial year ending on 31st March)

Certified that I have satisfied that the conditions on which grants were sanctioned have been duly fulfilled/are being fulfilled and that I have exercised following checks to see that the money has been actually utilized for the purpose for which it was sanctioned:

- (i) The main accounts and other subsidiary accounts and registers (including assets registers) are maintained as prescribed in the relevant Act/Rules/Standing instructions (mention the Act/Rules) and have been duly audited by designated auditors. The figures depicted above tally with the audited figures mentioned in financial statements/accounts.
- (ii) There exist internal controls for safeguarding public funds/assets, watching outcomes and achievements of physical targets against the financial inputs, ensuring quality in asset creation etc. & the periodic evaluation of internal controls is exercised to ensure their effectiveness.
- (iii) To the best of our knowledge and belief, no transactions have been entered that are in violation of relevant Act/Rules/standing instructions and scheme guidelines.
- (iv) The responsibilities among the key functionaries for execution of the scheme have been assigned in clear terms and are not general in nature.
- (v) The benefits were extended to the intended beneficiaries and only such areas/districts were covered where the scheme was intended to operate.
- (vi) The expenditure on various components of the scheme was in the proportions authorized as per the scheme guidelines and terms and conditions of the grants-in-aid.
- (vii) It has been ensured that the physical and financial performance under **Core Research Grant (PAC Electrical Electronics & Computer Engineering)** scheme has been according to the requirements, as prescribed in the guidelines issued by Govt. of India and the performance/targets achieved statement for the year to which the utilization of the fund resulted in outcomes given at Annexure
- I duly enclosed.
- (viii) The utilization of the fund resulted in outcomes given at Annexure - II duly enclosed (to be formulated by the Ministry/Department concerned as per their requirements/specifications.)
- (ix) Details of various schemes executed by the agency through grants-in-aid received from the same Ministry or from other Ministries is enclosed at Annexure -II (to be formulated by the Ministry/Department concerned as per their requirements/specifications).

Date: 31.03.2023

Place: Mumbai.

 Signature of PI :	 महायुक्त कुलमंडल, Assistant Registrar Signature with Seal Name: and Consultation Accounts, IIR Chief Financial Officer मुंबई / IIT Bombay (Head of Finance), Mumbai-400076.	 सह. संकायाध्यक्ष, अनुसंधान एवं विकास कृते निदेशक, आय आर्गन मुंबई Associate Dean, Research and Development Signature with Seal Name: मुंबई / Power Number: 76 Head of Organisation
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7/4/2023

GFR 12 – A
[(See Rule 238 (1))]
UTILIZATION CERTIFICATE (UC) FOR THE YEAR 2022-23
in respect of *NON-RECURRING*
as on to be submitted to SERB
Is the UC (Provisional/Audited)

(To be given separately for each financial year ending on 31st March)

1. Name of the grant receiving Organization : Alva's Institute of Engineering and Technology (AIET), Moodbidri
2. Name of Principal Investigator(PI) : Dr. Siddhartha P Dutttagupta with Co-PIs from AIET: Dr. Jayarama A & Dr. Richard Pinto
3. SERB Sanction order no. & date File No : CRG/2021/000722/EEC & date : 24-May-2022
4. Title of the Project : Electrochemical discharge machined serpentine micro-channels in fused quartz for photo-catalytic in-situ hydrogen evolution in hydrogen fuel cells
5. Name of the SERB Scheme : CRG
6. Whether recurring or non-recurring grants : **NON-RECURRING**
7. Grants position at the beginning of the Financial year

- (i) Carry forward from previous financial year : NIL
- (ii) Others, If any : NIL
- (iii) **Total** : NIL

8. Details of grants received, expenditure incurred and closing balances: (Actuals)

Unspent Balance of Grants received previous years [figure as at Sl. No. 7(ii)]	Interest Earned thereon	Interest deposited back to the SERB	Grants received during the year			Total Available funds (1+2-3+4)	Expenditure incurred	Closing Balances (5-6)
1	2	3	4			5	6	7
			Sanction No. (i)	Date (ii)	Amount (iii)			
0.00	48749.9	NIL	CRG/2021/000722	24-May-2022	2000000	20,48,749.90	13,12,160	7,36,590

Component wise utilization of grants:

Grants-in-aid- General	Grant-in-aid-creation for capital assets	Total
Nil	13,12,160	13,12,160

Details of grants position at the end of the year

- (i) Balance available at end of financial year : 7,36,590
- (ii) Unspent balance refunded to SERB (If any) : Nil
- (iii) Balance (Carried forward to next financial year) if applicable : 7,36,590





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[(See Rule 238 (1))]
UTILIZATION CERTIFICATE (UC) FOR THE YEAR
In respect of NON-RECURRING
as on to be submitted to SERB
Is the UC (Provisional/Audited)
(To be given separately for each financial year ending on 31st March)

Certified that I have satisfied that the conditions on which grants were sanctioned have been duly fulfilled/are being fulfilled and that I have exercised following checks to see that the money has been actually utilized for the purpose for which it was sanctioned:

- (i) The main accounts and other subsidiary accounts and registers (including assets registers) are maintained as prescribed in the relevant Act/Rules/Standing instructions (mention the Act/Rules) and have been duly audited by designated auditors. The figures depicted above tally with the audited figures mentioned in financial statements/accounts.
- (ii) There exist internal controls for safeguarding public funds/assets, watching outcomes and achievements of physical targets against the financial inputs, ensuring quality in asset creation etc. & the periodic evaluation of internal controls is exercised to ensure their effectiveness.
- (iii) To the best of our knowledge and belief, no transactions have been entered that are in violation of relevant Act/Rules/standing instructions and scheme guidelines.
- (iv) The responsibilities among the key functionaries for execution of the scheme have been assigned in clear terms and are not general in nature.
- (v) The benefits were extended to the intended beneficiaries and only such areas/districts were covered where the scheme was intended to operate.
- (vi) The expenditure on various components of the scheme was in the proportions authorized as per the scheme guidelines and terms and conditions of the grants-in-aid.
- (vii) It has been ensured that the physical and financial performance under CRG (Name of the scheme has been according to the requirements, as prescribed in the guidelines issued by Govt. of India and the performance/targets achieved statement for the year to which the utilization of the fund resulted in outcomes given at Annexure– I duly enclosed.
- (viii) The utilization of the fund resulted in outcomes given at Annexure – II duly enclosed (to be formulated by the Ministry/Department concerned as per their requirements/specifications.)
- (ix) Details of various schemes executed by the agency through grants-in-aid received from the same Ministry or from other Ministries is enclosed at Annexure –II (to be formulated by the Ministry/Department concerned as per their requirements/specifications).

Date:

Place:

<p>Signature of CO-PI-1 :  Signature of CO-PI-2:  </p>	<p style="text-align: center;">  Signature with Seal : Name: Shantharam Kamath Chief Finance Officer (Head of Finance) </p>	<p style="text-align: center;">  Signature with Seal : Name: M. S. Ramesh Head of Organisation </p>
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[(See Rule 238 (1))]
UTILIZATION CERTIFICATE (UC) FOR THE YEAR 2022-23
in respect of NON- RECURRING
as on 31st March, 2023 to be submitted to SERB
Is the UC Provisional/Audited
(To be given separately for each financial year ending on 31st March)

1. Name of the grant receiving Organization : Indian Institute Of Technology Bombay.
2. Name of Principal Investigator(PI) : Dr. Siddhartha Duttgupta, Dept. of Electrical Engineering.
3. SERB Sanction order no. & date : CRG/2021/000722 Dtd. 12.05.2022
4. Title of the Project : Electrochemical discharge machined serpentine micro-channels in fused quartz for photo-catalytic
5. Whether recurring or non-recurring grants : **NON RECURRING**
6. Grants position at the beginning of the Financial year
 - a. Carry forward from previous financial year : NIL
 - b. Others, If any : NIL
 - c. Total : 0.00

7. Details of grants received, expenditure incurred and closing balances: (Actuals)

Unspent Balance of Grants received previous years [figure as at Sl. No. 7(iii)]	Interest Earned thereon	Interest deposited back to the SERB	Grants received during the year			Total Available funds (1+2-3+4)	Expenditure incurred	Closing Balances (5-6)
1	2	3	4			5	6	7
			Sanction No. (i)	Date (ii)	Amount (iii)			
0.00	1213	NIL	CRG/2021/000722	12.05.2022	50,000	51,213	NIL	51,213

Component wise utilization of grants:

Grants-in-aid- General	Grant-in-aid-creation for capital assets	Total
NIL	NIL	NIL

Details of grants position at the end of the year

- a. Balance available at end of financial year : Rs. 51,213/-
- b. Unspent balance refunded to SERB (If any) : NIL
- c. Balance (Carried forward to next financial year) if applicable : Rs. 51,213/-

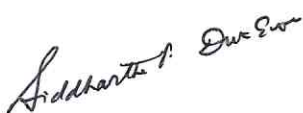


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UTILIZATION CERTIFICATE (UC) FOR THE YEAR 2022-23
in respect of **NON-RECURRING**
as on **31st March, 2023** to be submitted to **SERB**
Is the UC **Provisional/Audited**
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Certified that I have satisfied that the conditions on which grants were sanctioned have been duly fulfilled/are being fulfilled and that I have exercised following checks to see that the money has been actually utilized for the purpose for which it was sanctioned:

- (i) The main accounts and other subsidiary accounts and registers (including assets registers) are maintained as prescribed in the relevant Act/Rules/Standing instructions (mention the Act/Rules) and have been duly audited by designated auditors. The figures depicted above tally with the audited figures mentioned in financial statements/accounts.
- (ii) There exist internal controls for safeguarding public funds/assets, watching outcomes and achievements of physical targets against the financial inputs, ensuring quality in asset creation etc. & the periodic evaluation of internal controls is exercised to ensure their effectiveness.
- (iii) To the best of our knowledge and belief, no transactions have been entered that are in violation of relevant Act/Rules/standing instructions and scheme guidelines.
- (iv) The responsibilities among the key functionaries for execution of the scheme have been assigned in clear terms and are not general in nature.
- (v) The benefits were extended to the intended beneficiaries and only such areas/districts were covered where the scheme was intended to operate.
- (vi) The expenditure on various components of the scheme was in the proportions authorized as per the scheme guidelines and terms and conditions of the grants-in-aid.
- (vii) It has been ensured that the physical and financial performance under **Core Research Grant (PAC Electrical Electronics & Computer Engineering)** scheme has been according to the requirements, as prescribed in the guidelines issued by Govt. of India and the performance/targets achieved statement for the year to which the utilization of the fund resulted in outcomes given at Annexure
- I duly enclosed.
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- (ix) Details of various schemes executed by the agency through grants-in-aid received from the same Ministry or from other Ministries is enclosed at Annexure -II (to be formulated by the Ministry/Department concerned as per their requirements/specifications).

Date: 31.03.2023

Place: Mumbai.

 Signature of PI :	 सहायक कुलसचिव/Assistant Registrar प्रमाणित/With Seal प्रमुख/Principal भारतीय विज्ञान संस्थान मुंबई/IIT Bombay प्रमुख/Head of Finance Mumbai-400076.	 सह. संकायप्रमुख अनुसंधान एवं विकास कृते निदेशक, आय आर् सी सी Associate Dean, Research and Development Signature, With Seal Name: P. Powai Mumbai-76 Head of Organisation
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UTILIZATION CERTIFICATE (UC) FOR THE YEAR 2022-23
in respect of *RECURRING*
as on to be submitted to SERB
Is the UC (*Provisional/Audited*)
(To be given separately for each financial year ending on 31st March)

1. Name of the grant receiving Organization : Alva's Institute of Engineering and Technology (AIET), Moodbidri
2. Name of Principal Investigator(PI): Dr. Siddhartha P Duttagupta with Co-PIs from AIET: Dr. Jayarama A & Dr. Richard Pinto
3. SERB Sanction order no. & date : File No : CRG/2021/000722/EEC & date : 24-May-2022
4. Title of the Project : Electrochemical discharge machined serpentine micro-channels in fused quartz for photo-catalytic in-situ hydrogen evolution in hydrogen fuel cells
5. Name of the SERB Scheme : CRG
6. Whether recurring or non-recurring grants : **RECURRING**

7. Grants position at the beginning of the Financial year

- | | | |
|--|---|-----|
| (i) Carry forward from previous financial year | : | NIL |
| (ii) Others, If any | : | NIL |
| (iii) Total | : | NIL |

8. Details of grants received, expenditure incurred and closing balances: (Actuals)

Unspent Balance of Grants received previous years [figure as at SL No. 7(iii)]	Interest Earned thereon	Interest deposited back to the SERB	Grants received during the year			Total Available funds (1+2-3+4)	Expenditure incurred	Closing Balances (5-6)
1	2	3	4			5	6	7
			Sanction No. (i)	Date (ii)	Amount (iii)			
0.00	5,412.10	NIL	CRG/2021/000722	24-May-2022	2,23,330.00	2,28,742.10	1,43,240.00	85,502.10

Component wise utilization of grants:

Grants-in-aid- General	Grant-in-aid-creation for capital assets	Total
1,43,240.00	NIL	1,43,240.00

Details of grants position at the end of the year

- | | | |
|--|---|-----------|
| (i) Balance available at end of financial year | : | 85,502.10 |
| (ii) Unspent balance refunded to SERB (If any) | : | Nil |
| (iii) Balance (Carried forward to next financial year) if applicable | : | 85,502.10 |


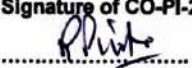


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UTILIZATION CERTIFICATE (UC) FOR THE YEAR
In respect of RECURRING
as on to be submitted to SERB
Is the UC (Provisional/Audited)
(To be given separately for each financial year ending on 31st March)

Certified that I have satisfied that the conditions on which grants were sanctioned have been duly fulfilled/are being fulfilled and that I have exercised following checks to see that the money has been actually utilized for the purpose for which it was sanctioned:

- (i) The main accounts and other subsidiary accounts and registers (including assets registers) are maintained as prescribed in the relevant Act/Rules/Standing instructions (mention the Act/Rules) and have been duly audited by designated auditors. The figures depicted above tally with the audited figures mentioned in financial statements/accounts.
- (ii) There exist internal controls for safeguarding public funds/assets, watching outcomes and achievements of physical targets against the financial inputs, ensuring quality in asset creation etc. & the periodic evaluation of internal controls is exercised to ensure their effectiveness.
- (iii) To the best of our knowledge and belief, no transactions have been entered that are in violation of relevant Act/Rules/standing instructions and scheme guidelines.
- (iv) The responsibilities among the key functionaries for execution of the scheme have been assigned in clear terms and are not general in nature.
- (v) The benefits were extended to the intended beneficiaries and only such areas/districts were covered where the scheme was intended to operate.
- (vi) The expenditure on various components of the scheme was in the proportions authorized as per the scheme guidelines and terms and conditions of the grants-in-aid.
- (vii) It has been ensured that the physical and financial performance under CRG (Name of the scheme has been according to the requirements, as prescribed in the guidelines issued by Govt. of India and the performance/targets achieved statement for the year to which the utilization of the fund resulted in outcomes given at Annexure - I duly enclosed.
- (viii) The utilization of the fund resulted in outcomes given at Annexure - II duly enclosed (to be formulated by the Ministry/Department concerned as per their requirements/specifications.)
- (ix) Details of various schemes executed by the agency through grants-in-aid received from the same Ministry or from other Ministries is enclosed at Annexure -II (to be formulated by the Ministry/Department concerned as per their requirements/specifications).

Date:

Place:

<p>Signature of CO-PI-1 : </p> <p>Signature of CO-PI-2 : </p>	<p style="text-align: center;">  Signature with Seal : Name: Shantharam Kamath Chief Finance Officer (Head of Finance) </p>	<p style="text-align: center;">  Signature with Seal : Name: P. J. Fernandes Mijar, MOOBBIDRI - 574 225 Head of Organisation </p>
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REQUEST FOR ANNUAL INSTALMENT WITH UP-TO-DATE STATEMENT OF EXPENDITURE

1. SERB Sanction Order No and date
2. Name of the PI
2. Total Project Cost
3. Title of the Project
4. Date of Start/Commencement
5. End date/Completion
6. Statement of Expenditure
(month wise expenditure incurred during current financial year)

CRG/2021/000722
 Dr. Siddhartha P Duttagupta, Dept of Electrical Engineering
 Rs. 23,13,696/-
 Electrochemical discharge machined serpentine micro-channels in fused quartz for photo-catalytic in-situ hydrogen evolution in hydrogen fuel cells
 24.05.2022
 11.05.2025
 2022-23

Month & Year	Expenditure incurred/ committed
May - 22	0
June - 22	0
July - 22	0
Aug - 22	0
Sep - 22	0
Oct - 22	0
Nov - 22	0
Dec - 22	1,03,125
Jan - 23	4,100
Feb - 23	0
March - 23	63,800
Total	1,71,025

Grant received in each year:

a.1st Year (2022-23)	Rs.10,31,230
d.Interest, if any	Rs. 20,871
Total (a+b+c+d)	Rs.10,52,101

Statement of Expenditure
 (to be submitted financial yearwise ie. 12.05.2022 till 31.03.2023)

Sr.No.	Sanctioned Heads	Funds Allocated (indicate sanctioned or revised)	Funds Received 1 st Year (24.05.2022 to 31.03.2023)	Expenditure Incurred 1 st Year (24.05.2022 to 31.03.2023)	Total Expenditure	Balance as on 31.03.2023	Requirement of Funds upto 31st March next year	Remarks (if any)
(i)	(ii)	(iii)	(iv)	(iv)	(vii)=iv+v+vi	(viii)=(iii-vii)		
1	Equipment & Tools	50,000	50,000	0	0	50,000		
2	Manpower	14,43,360	6,58,105	62,000	62,000	5,96,105		
3	Consumables	5,50,000	1,50,000	0	0	1,50,000		
4	Travel		-	0	0	0		
5	Contingencies		50,000	5,900	5,900	44,100		
7	Social Sci. Resp.	60,000	20,000	0	0	20,000		
8	Overhead	2,10,336	1,03,125	1,03,125	1,03,125	0		
	Total	23,13,696	10,31,230	1,71,025	1,71,025	8,60,205		

Balance out of received funds is .

Rs.8,60,205

Name and Signature of Principal Investigator:
 Date: 13/09/2023

Dr. Siddhartha P. Duttagupta

सहायक कुलसचिव/Assistant Registrar
 Project and Consultation Accounts, IRCC
 भारतीय प्रौद्योगिकी संस्थान मुंबई/IIT Bombay
 पत्राई विभाग-96/Powai, Mumbai-400076

14/9/2023

* DOS - Date of Start of project

Note :

1. Expenditure under the sanctioned heads, at any point of time, should not exceed funds allocated under that head, without prior approval of SERB
 i.e. Figures in Column (VII) should not exceed corresponding figures in Column (III)
2. Utilisation Certificate (Annexure III) for each financial year ending 31st March has to be enclosed along with request for carry-forward permission to the next financial year.

Annexure-II**REQUEST FOR ANNUAL INSTALMENT WITH UP-TO-DATE STATEMENT OF EXPENDITURE**

1. SERB Sanction Order No and date : File No : CRG/2021/000722/EEC & date : 24-May-2022
2. Name of the PI : Dr. Siddhartha P Duttagupta, Indian Institute of Technology Bombay (IITB) with Co-PIs
Dr. Jayarama A & Dr. Richard Pinto from Alva's Institute of Engineering and Technology (AIET),
3. Total Project Cost : Rs. 5118696 (AIET Rs. 2805000 + IITB Rs. 2313696)
4. Revised Project Cost : Not applicable
5. Date of Commencement : 24-May-2022
6. Statement of Expenditure :
(Month wise expenditure incurred during current financial year)

Month & year	Expenditure incurred/ committed (Rs.)
May 2022 to November 2022	0.00
December 2022	38173
January 2023	52619
February 2023	0.00
March 2023	13,64,578 (+ 7,99,981 (committed))
Total	14,55,370 (+ 7,99,981 (committed))

1. Grant received in each year:
 - a. 1st Year : Rs. 2223330.00
 - b. 2nd Year : Not Applicable
 - c. 3rd Year : Not Applicable
 - d. Interest, if any : Rs. 54162.00
 - e. Total (a + b + c + d) : Rs. 22.77,492.00

Statement of Expenditure
24-05-2022 to 31.03.2023

Sr No	Sanctioned Heads	Total Funds Allocated (indicate sanctioned or revised)	Expenditure Incurred			Total Expenditure till.. (VII = IV + V + VI)	Balance as on (date) (VIII = III - VII)	Requirement of Funds upto 31 st March next year	Remarks (if any)
			1 st Year (24-05-2022 to 31.03.2023) (3)	2 nd Year (1 st April to 31 st March next year) (5)	3 rd Year & so on (1 st April to 31 st March next year) (6)				
1.	Manpower costs	0.00	0.00			0.00	0.00	0.00	-
2.	Consumables	5,50,000.00	1,43,240.00			1,43,240.00	4,06,760.00	3,00,000	-
3.	Travel								
4.	Contingencies								
5.	Others, if any								
6.	Equipment	20,00,000.00	13,12,160			13,12,160	6,87,840	1,12,141	***
7.	Overhead expenses	2,55,000.00	100000			100000	1,55,000.00	1,00,000	-
8.	Total	28,05,000.00	15,55,400.00			15,55,400.00	12,49,600.00	5,12,141	-

***: Due to enhancement of IGST from concessional 5% to regular 18%, the cost of equipment is increased over the earlier budgeted price. To compensate the short-fall we request an enhancement (or readjustment) of Rs. 1,12,141 for the payment of committed Turbo pump equipment of Rs. 7,99,981. Further due to shortage of equipment budget we could not procure RF generator with matching network and chiller which were approved earlier.

Name and Signature of Co-Principal Investigators:

Dr. Jayarama A:

Dr. Richard Pinto:

Date:



Signature of Competent financial authority:
(with seal)

Date:

* DOS – Date of Start of project

Note:

- Expenditure under the sanctioned heads, at any point of time, should not exceed funds allocated under that head, without prior approval of SERB i.e. Figures in Column (VIII) should not exceed corresponding figures in Column (III)
- Utilization Certificate (Annexure III) for each financial year ending 31st March has to be enclosed along with request for carry-forward permission to the next financial year.