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Department of Computer Science & Engineering

Call letter for Counseling for admission to the MTech (Theoretical Computer Science) programme under *Regular* Category at this Department commencing in July 2016.

(Please go to page 5 if you have applied under Sponsored/Part-Time/Project-Staff/BTech degrees from an IIT with a minimum CPI of 7.0 Category)

Note: Candidates who are unable to attend the M.Tech. Counseling on 24th May 2016, may send their representatives for the same.

The representative must carry an authorization letter from the candidate certifying that

- He/She can participate in the Counseling instead of the candidate.
- The representative must carry all the required documents, mentioned in call letter and deposit the fees (if selected).
- The decision taken by the representative regarding choice of branch i.e., CSE/TCS (if the candidate has applied for both) will be final.

Dear Applicant,

With reference to your application for admission to **MTech** (**Theoretical Computer Science**) Programme in the Department of Computer Science and Engineering (CSE) of this institute for the session commencing in July-2016, you are hereby requested to appear for **Counseling** according to the schedule given below:

Date & Time of Counseling: Tuesday, 24th May, 2016 at 9.00 a.m.
Venue : Dept of CSE, H-block, Academic Complex, IIT Guwahati

Please note that:

(1)   The **First List** of selected candidates shall be displayed in the Notice Board of the Department of Computer Science and Engineering, **around noon of the next day of the Counseling; and, if selected, you will be required to deposit admission fee in full on the same day** (as per details as indicated at **ANNEXURE-A** enclosed herewith)* to reserve your seat.

(2)   The **Second List** of selected candidates shall be drawn arising out of the vacancies in the First List of selected candidates and shall be displayed in the Notice Board of the Department of Computer Science and Engineering **ABOUT 5(FIVE) OFFICIAL WORKING DAYS <u>AFTER</u> NOTIFICATION OF THE <u>FIRST LIST</u> OF SELECTED CANDIDATES;** and the candidates selected under the Second List shall have to deposit admission fee in full (as per details as indicated at **ANNEXURE-A** enclosed herewith)* to reserve their seats **WITHIN 10(TEN) DAYS <u>AFTER</u> NOTIFICATION OF THE <u>SECOND LIST</u> OF SELECTED CANDIDATES**.

(3)   <u>Subject to vacancy of seats</u>, **if any further selection list is drawn**, candidates shall be intimated through e-mail. Candidates not having e-mail id shall be intimated through Fax, *provided such fax numbers are correctly stated in his/her admission* application form. Otherwise, the candidates shall have to keep on visiting the Institute's website http://www.iitg.ernet.in/acad/AdvtNotificationJuly2016/advertisement.htm   to know about any updated admission result status.

(4)   Admission Fee Deposit shall be received in **Cash or Demand Draft** (<u>drawn in favour of</u> **Indian Institute of Technology Guwahati,** payable at Guwahati) **only.** This is for your information that the Institute campus has **ATMs** of **SBI** and **Canara Bank** (**with** core banking facility).

Note: *   In case you decide to withdraw from the programme by intimating (<u>sending also the copy of your Admission Fee deposit receipt</u>, without which your request for withdrawal will not be valid) the Institute, through its Fax No. 0361 – 258 2090, e-mail :   acadoff@iitg.ernet.in, **latest by 07-07-2016**, a sum of Rs.1,000/- only shall be deducted from your admission fee deposit, and the balance amount shall be refunded to the address, to be specified by you in the fax letter. **Otherwise, only refundable portion of your admission fee deposit shall be returned** to you. Refund of fees for withdrawal cases will be sent from IIT Guwahati by around 30-09-2016.

          Also, please note the following:

(a)   (1) Firstly, you will be required to bring your downloaded and <u>signed</u> copy of the   Online Application Form (*If due to some reasons, you filled-up more than one online application forms, <u>you have to bring the latest and updated one only</u>*), **ALONG WITH**:

(i)   your coloured photograph of size 4.5 cm. x 3.5 cm., affixed on it;

(ii)   **Original Demand Draft** for Rs.150/- (Rs.75/- for SC/ST/PwD candidates), from any nationalized bank, in favour of INDIAN INSTITUTE OF TECHNOLOGY GUWAHATI, payable at Guwahati;

(iii)   attested copy of your Date of Birth Certificate (if DoB is not mentioned in your Class X/XII Pass Certificate/Mark Sheet);

(iv)   *if applicable*, attested copy of your Caste Certificate [*Please note that OBC (Non-creamy Layer) Certificate will have to be as per format prescribed in our Admission Notification for MTech programme, **and issued by the competent authority on or after 01-04-2015, failure to which you will be considered under `General' category*]*;

(v)   *if applicable*, attested copy of your `PwD' Certificate;

(vi)   *if applicable*, the appropriate **Form in original** relating to candidate's Category [Sponsored (Full-Time)/ IITG's Project Staff/ Part-Time] - *as per format prescribed in our Admission Notification for MTech programme*;

(vii)   attested copies of Pass Certificates and Mark Sheets [*Mark Sheets should be complete for all semesters/years* of your educational qualifications (from Class X onwards)];

(viii)   *as may be applicable*, attested copy of your GATE/CEED Score Card (*This is a MUST, unless your qualifying degree is M.E. or M.Tech. or M.Des, Or you are a BTech/BDes degree holder from an IIT with a minimum CPI of 7.0*);

(ix)   *as may be applicable*, attested copy of Certificates relating to your professional experience etc.*;*

(2)   *As may be applicable* , you are also required to bring all **ORIGINAL documents relating to** points (a)(1) (iii), (iv), (v), (vi), (vii), (viii) and (ix), for verification on the day of your **Counseling**.

(b)   If you have appeared in the qualifying degree examination and your results are awaited OR you are going to appear in all the subjects of your qualifying degree examination before **15-07-2016**, you may appear in the **Counseling**. Please note that, for such candidates, selections shall be provisional. And all provisionally selected candidates   shall have to produce their original pass certificates and Mark Sheets of the qualifying

degree examination latest by **22-08-2016**, for regularization – <u>failure to which their admissions shall stand automatically cancelled.</u>

(c)   Selection of candidates shall be through the process of **Counseling**.

> Selection of candidates shall be through Counseling Session, along with other aspects [like verification of documents, discussions on areas of specializations (wherever applicable) etc.], GATE Score/CEED Marks shall also be taken in to account.

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Call letter for Written Test and/or Interview for admission to the MTech (Theoretical Computer Science) programme under Sponsored/*Part-Time/Project-Staff/ BTech degrees from an IIT with a minimum CPI of 7.0* Category at this Department commencing in July 2016

Dear Applicant,

With reference to your application for admission to **MTech** (Sponsored/Part-Time/Project-Staff/ BTech degrees from an IIT with a minimum CPI of 7.0) Programme in the Department of Computer Science and Engineering of this institute for the session commencing in July-2016, you are hereby requested to appear for **Written Test and/or interview** according to the schedule given below:

Date & Time of **Written Test and/or interview***: Tuesday, 24th May, 2016 at 9.00 a.m.*
Venue : Dept of CSE, H-block, Academic Complex, IIT Guwahati

The written test and/or interview will be based on B.Tech CSE curriculum (Syllabus attached, please see Annexure A).

Please note that:

(1)   The **List** of selected candidates shall be displayed in the Notice Board of the Department of Computer Science and Engineering, **around noon of the next day of the written test and/or interview; and, if selected, you will be required to deposit admission fee in full on the same day** (as per details as indicated at **ANNEXURE-A** enclosed herewith)* to reserve your seat.

(2)   The **Second List** of selected candidates shall be drawn arising out of the vacancies in the First List of selected candidates and shall be displayed in the Notice Board of the Department of Computer Science and Engineering **ABOUT 5(FIVE) OFFICIAL WORKING DAYS** <u>AFTER</u> **NOTIFICATION OF THE** <u>FIRST LIST</u> **OF SELECTED CANDIDATES;** and the candidates selected under the Second List shall have to deposit admission fee in full (as per details as indicated at **ANNEXURE-A** enclosed herewith)* to reserve their seats **WITHIN 10(TEN) DAYS** <u>AFTER</u> **NOTIFICATION OF THE** <u>SECOND LIST</u> **OF SELECTED CANDIDATES**.

(3)   <u>Subject to vacancy of seats</u>, **if any further selection list is drawn**, candidates shall be intimated through e-mail. Candidates not having e-mail id shall be intimated through Fax, *provided such fax numbers are correctly stated in his/her admission* application form. Otherwise, the candidates shall have to keep on visiting the Institute's website
http://www.iitg.ernet.in/acad/AdvtNotificationJuly2016/advertisement.htm   to know about any updated admission result status.

(4)   Admission Fee Deposit shall be received in **Cash or Demand Draft** (<u>drawn in favour of</u> **Indian Institute of Technology Guwahati,** payable at Guwahati) **only.** This is for your information that the Institute campus has **ATMs** of **SBI** and **Canara Bank** (**with** core banking facility).

Note: *   In case you decide to withdraw from the programme by intimating (sending also the copy of your Admission Fee deposit receipt, without which your request for withdrawal will not be valid) the Institute, through its Fax No. 0361 – 258 2090, e-mail :   acadoff@iitg.ernet.in, **latest by 07-07-2016**, a sum of Rs.1,000/- only shall be deducted from your admission fee deposit, and the balance amount shall be refunded to the address, to be specified by you in the fax letter. **Otherwise, only refundable portion of your admission fee deposit shall be returned** to you. Refund of fees for withdrawal cases will be sent from IIT Guwahati by around 30-09-2016.

Also, please note the following:

(a)   (1) Firstly, you will be required to bring your downloaded and <u>signed</u> copy of the   Online Application Form (*If due to some reasons, you filled-up more than one online application forms, you have to bring the latest and updated one only*), **ALONG WITH**:

(i)   your coloured photograph of size 4.5 cm. x 3.5 cm., affixed on it;

(ii)   **Original Demand Draft** for Rs.150/- (Rs.75/- for SC/ST/PwD candidates), from any nationalized bank, <u>in favour of</u> INDIAN INSTITUTE OF TECHNOLOGY GUWAHATI, payable at Guwahati;

(iii)   attested copy of your Date of Birth Certificate (if DoB is not mentioned in your Class X/XII Pass Certificate/Mark Sheet);

(iv)   *if applicable*, attested copy of your Caste Certificate [*Please note that OBC (Non-creamy Layer) Certificate will have to be as per format prescribed in our Admission Notification for MTech programme, **and issued by the competent authority on or after 01-04-2015, failure to which you will be considered under `General' category***];

(v)   *if applicable*, attested copy of your `PwD' Certificate;

(vi)   *if applicable*, the appropriate **Form in original** relating to candidate's Category [Sponsored (Full-Time)/ IITG's Project Staff/ Part-Time] - *as per format prescribed in our Admission Notification for MTech programme*;

(vii)   attested copies of Pass Certificates and Mark Sheets [*Mark Sheets should be complete for all semesters/years* of your educational qualifications (from Class X onwards)];

(viii)   *as may be applicable*, attested copy of your GATE/CEED Score Card (*This is a MUST, unless your qualifying degree is M.E. or M.Tech. or M.Des, Or you are a BTech/BDes degree holder from an IIT with a minimum CPI of 7.0*);

(ix)   *__as may be applicable__*, attested copy of Certificates relating to your professional experience etc.*;*

(2)   *__As may be applicable__* , you are also required to bring all **ORIGINAL documents relating to** points (a)(1) (iii), (iv), (v), (vi), (vii), (viii) and (ix), for verification on the day of your **Counseling**.

(b)   If you have appeared in the qualifying degree examination and your results are awaited OR you are going to appear in all the subjects of your qualifying degree examination before **15-07-2016**, you may appear in the **Counseling**. Please note that, for such candidates, selections shall be provisional. And all provisionally selected candidates   shall have to produce their original pass certificates and Mark Sheets of the qualifying degree examination latest by **22-08-2016**, for regularization − failure to which their admissions shall stand automatically cancelled.

(c)   Selection of candidates shall be through the process of **written test and/or interview**.

Yours sincerely,

Samit Bhattacharya   D Goswami
Convener, Admissions Committee 2016-17   Professor & HoD
Department of CSE   Department of CSE
IIT Guwahati   IIT Guwahati

Written Test Syllabus

Engineering Mathematics

Mathematical Logic: Propositional Logic; First Order Logic.

Probability: Conditional Probability; Mean, Median, Mode and Standard Deviation; Random Variables; Distributions; uniform, normal, exponential, Poisson, Binomial.

Set Theory & Algebra: Sets; Relations; Functions; Groups; Partial Orders; Lattice; Boolean Algebra.

Combinatorics: Permutations; Combinations; Counting; Summation; generating functions; recurrence relations;asymptotics.

Graph Theory: Connectivity; spanning trees; Cut vertices & edges; covering; matching; independent sets; Colouring; Planarity; Isomorphism.

Computer Science and Information Technology – core topics

Digital Logic: Logic functions, Minimization, Design and synthesis of combinational and sequential circuits; Number representation and computer arithmetic (fixed and floating point).

Computer Organization and Architecture: Machine instructions and addressing modes, ALU and data-path, CPU control design, Memory interface, I/O interface (Interrupt and DMA mode), Instruction pipelining, Cache and main memory, Secondary storage.

Programming and Data Structures: Programming in C; Functions, Recursion, Parameter passing, Scope, Binding; Abstract data types, Arrays, Stacks, Queues, Linked Lists, Trees, Binary search trees, Binary heaps.

Algorithms: Analysis, Asymptotic notation, Notions of space and time complexity, Worst and average case analysis; Design: Greedy approach, Dynamic programming, Divide-and-conquer; Tree and graph traversals, Connected components, Spanning trees, Shortest paths; Hashing, Sorting, Searching. Asymptotic analysis (best, worst, average cases) of time and space, upper and lower bounds, Basic concepts of complexity classes P, NP, NP-hard, NP-complete.

Theory of Computation: Regular languages and finite automata, Context free languages and Push-down automata, Recursively enumerable sets and Turing machines, Undecidability.

Compiler Design: Lexical analysis, Parsing, Syntax directed translation, Runtime environments, Intermediate and target code generation, Basics of code optimization.

Operating System: Processes, Threads, Inter-process communication, Concurrency, Synchronization, Deadlock, CPU scheduling, Memory management and virtual memory, File systems, I/O systems, Protection and security.

Databases: ER-model, Relational model (relational algebra, tuple calculus), Database design (integrity constraints, normal forms), Query languages (SQL), File structures (sequential files, indexing, B and B+ trees), Transactions and concurrency control.

Computer Networks: ISO/OSI stack, LAN technologies (Ethernet, Token ring), Flow and error control techniques, Routing algorithms, Congestion control, TCP/UDP and sockets, IP(v4), Application layer protocols (icmp, dns, smtp, pop, ftp, http); Basic concepts of hubs, switches, gateways, and routers. Network security basic concepts of public key and private key cryptography, digital signature, firewalls.

Annexure- B

For New M. Tech / M. Des./M.S.(R) students for July-Nov 2016 Semester (First Semester)

Sl. No.	Items	Periodicity	Amount (Rs.)
1.	Admission fee	One Time	150
2.	Grade Card Fee	One Time	150
3.	Provisional Certificate Fee	One Time	100
4.	Medical Examination Fee	One Time	100
5.	Student Welfare Fund	One Time	200
6.	Identity Card Fee	One Time	50
7.	**Tuition Fee ***		
	a) Applicable for regular and QIP students	Per Semester	5,000
	b) Applicable for Self-financed OR Sponsored students (part-time / full-time) who are serving as teachers	Per Semester	5,000
	c) Applicable for Self-financed OR Sponsored students (part-time / full-time) who are NOT serving as teachers	Per Semester	25,000
8.	Examination Fee	Per Semester	350
9.	Registration / Enrolment Fee	Per Semester	200
10.	Gymkhana Fee	Per Semester	200
11.	Medical Fee	Per Semester	100
12.	Institute Caution Money	One Time (Refundable)	1,000
13.	Library Caution Money	One Time (Refundable)	1,000
14.	Hostel Admission Fee **	One Time	400
15.	Hostel Rent **	Per Semester	1,000
16.	Hostel Fund**	Per Semester	400
17.	Fan, Electricity and Water Charges **	Per Semester	2,000
18.	Hall Caution Money **	One Time(Refundable)	1,000
19.	Students' Brotherhood Fund (SBF)	Per Semester	50
20.	Group Medical Insurance Scheme(GMIS) Premium for 2016-17	Per Year	1,500

Total (1 to 20) [**Without** mess related fee / deposit] – To be commonly applicable for **all**: a) Regular and QIP students	**Hosteller**	**14,950**
b) Self-financed OR Sponsored students (part time / full time) who are serving as teachers	**Non-hosteller**	**10,150**
Total (1 to 20) [**Without** mess related fee / deposit] – For **all** Self-financed OR Sponsored students (part time / full time) who are NOT serving as teachers	**Hosteller**	**34,950**
	Non-hosteller	**30,150**
Total (1 to 20) for `Regular' SC / ST/ PwD students - Without mess related fee / deposit	**Hosteller**	**9,950**
	Non-hosteller	**5,150**

Mess related Collections for all hosteller students:

Sl. No.	Items	Periodicity	Amount (Rs.)
21.	Mess Deposit	One Time (Refundable)	2,600
22.	Hall Mess Establishment Charges	One Time	1,000
23.	Mess Advance	First Semester	11,495
Total (21 to 23)			**15,095**

GRAND TOTAL (1 TO 23) [**WITH** mess related fee / deposit] – To be commonly applicable for **all** : a) Regular and QIP students	**Hosteller**	**30,045**
b) Self-financed OR Sponsored students (part time / full time) who are serving as teachers	**Non-hosteller**	**10,150**
GRAND TOTAL (1 TO 23) [**WITH** mess related fee / deposit] – For **all** Self-financed OR Sponsored students (part time / full time) who are NOT serving as teachers	**Hosteller**	**50,045**
	Non-hosteller	**30,150**
GRAND TOTAL (1 TO 23) FOR SC/ST S/PwD TUDENTS ((WITH mess related fee / deposit)	**Hosteller**	**25,045**
	Non-hosteller	**5,150**

* "Regular" SC / ST / PwD students are not required to pay Tuition Fees
** These are Hostel related Fees to be paid by Hostellers only.

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<u>Annexure – C (Miscellaneous Information)</u>

(A) In case you intend to stay at the hostel, **please bring a bedroll**. Note that only the shortlisted candidates will be provided accommodation in the hostels. No accompanying persons can be accommodated in the hostels. Details regarding accommodation will be posted at the Department website: http://www.iitg.ernet.in/cse.

(B) On arrival at Guwahati you may make use of the Institute bus service. This bus service (designated "Green-Valley, ON IIT DUTY") operates from G.N.B road, Panbazar, near Assam Publication Board, opposite Hotel President, Guwahati (which is about a kilometre away from the Guwahati Railway Station) to the IIT Guwahati campus as per the following schedule :

Departure timings: (City to IITG on Saturday/Sundays/Institute Holidays): 6.45 A.M., 7.45 A.M., 8.15 A.M, 10.00 A.M., 11.00 A.M., 1.00 P.M., 2.00 P.M., 3.00 P.M., 4.00 P.M., 5.00 P.M., 6.00 P.M., 6.30 P.M., 7.15 P.M., 8.00 P.M., 8.30 P.M., 8.45 P.M., 8.55 P.M., 9.00 P.M.

Departure timings: (City to IITG on Other days): 6.45 A.M., 7.45 A.M., 8.15 A.M., 10.00 A.M., 12.00 Noon, 1.00 P.M., 2.00 P.M., 3.00 P.M., 4.00 P.M., 5.15 P.M., 6.45 P.M., 7.30 P.M., 8.00 P.M., 8.30 P.M., 8.55 P.M.